FUNAI

VCR-6400

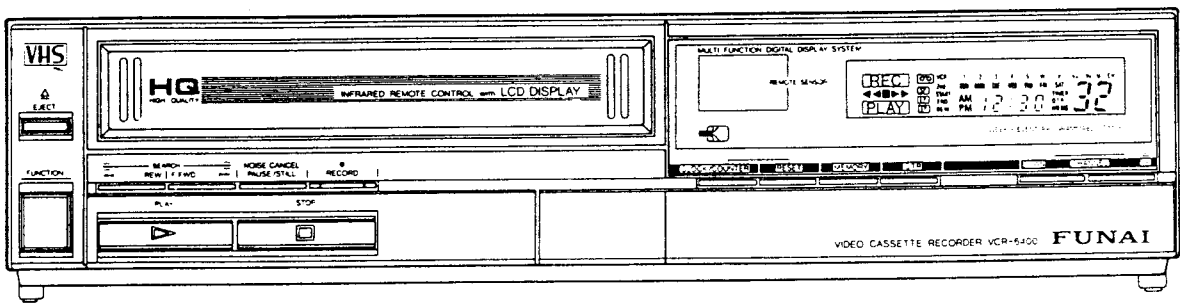
VHS HQ

PAL

Video Cassette Recorder

HQ

Video cassette recorders bearing the "HQ" mark incorporate VHS high quality technology. Note that there is interchangeability with former VHS video cassette recorder.



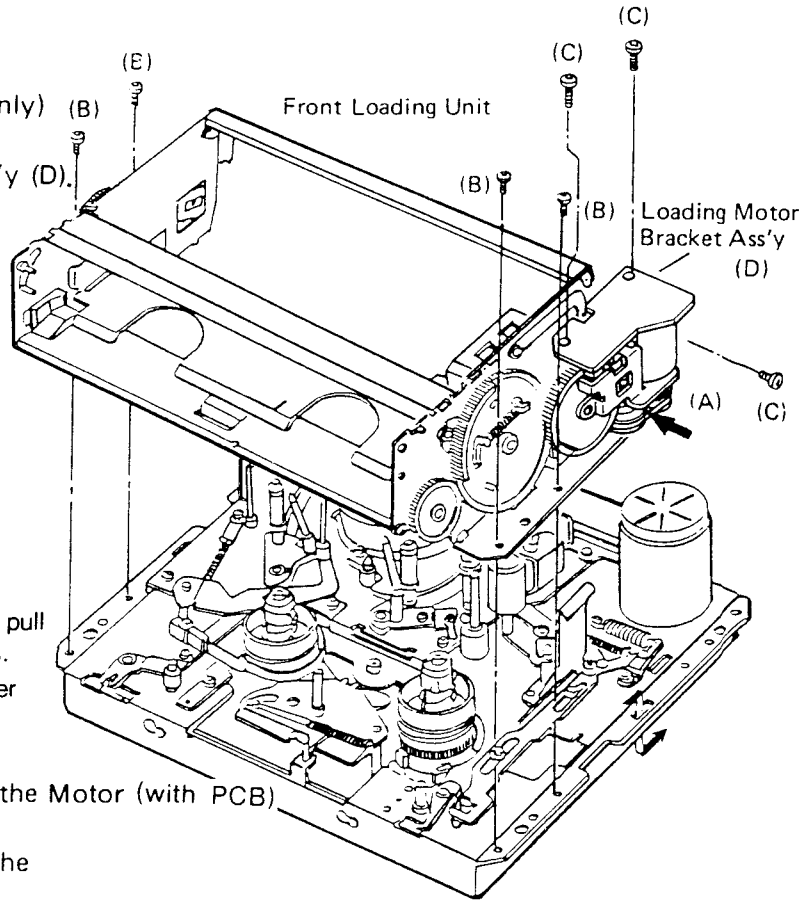
SERVICE MANUAL

CONTENTS

DISASSEMBLY INSTRUCTIONS (DECK)

[1] FRONT LOADING UNIT

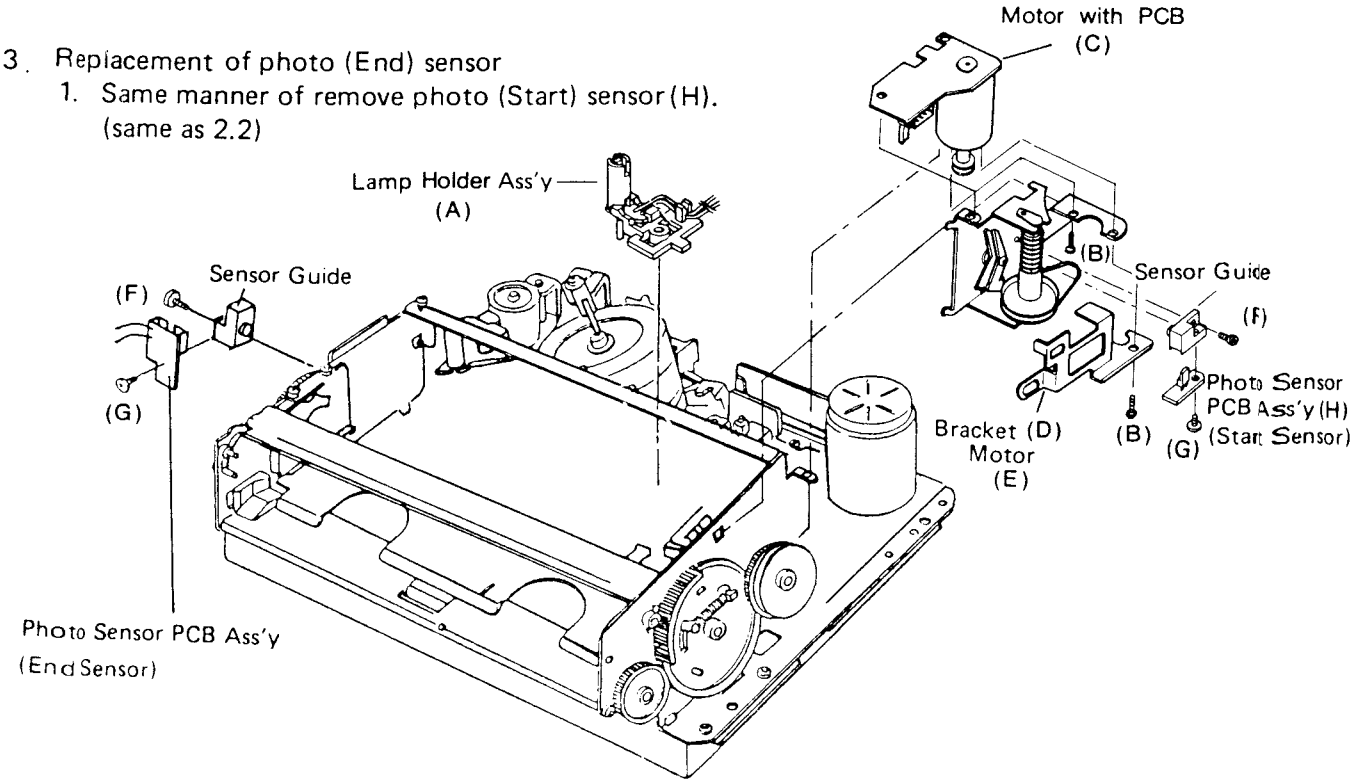
1. Remove 4 screws (B).
2. Take off the hook (A). (Right side only)
3. Remove 3 screws (C).
4. Take off Loading Motor Bracket Ass'y (D).



[2] PHOTO SENSOR

1. Replacement of Lamp Holder Ass'y.
   (Sensor Lamp)
   1. Hold lamp holder ass'y body(A) and pull up to remove the hook from chassis.
   2. Turn the lamp holder ass'y to counter clockwise and take out holder ass'y.
2. Replacement of photo (Start) sensor
   1. Remove 2 screws (B) and take off the Motor (with PCB) (C)and Bracket (D), Motor (E).
   2. Remove 1 screw (F) and take off the Sensor Guide.
      Remove 1 screw (G) and take off the Photo Sensor PCB Ass'y.

3. Replacement of photo (End) sensor
   1. Same manner of remove photo (Start) sensor (H). (same as 2.2)



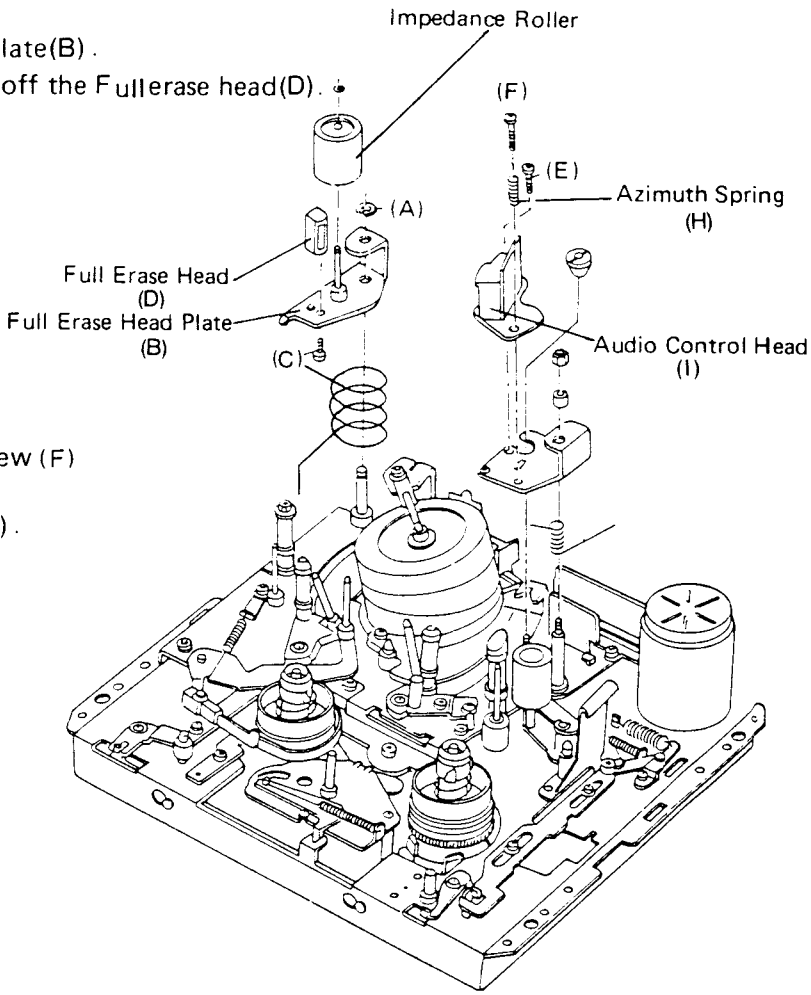
[3] FULL ERASE HEAD/AUDIO CONTROL HEAD

Erase Head

1. Remove E-ring (A).
2. Pull out the Full Erase head plate(B).
3. Remove 1 screw (C) and take off the Full erase head(D).

Audio Control Head

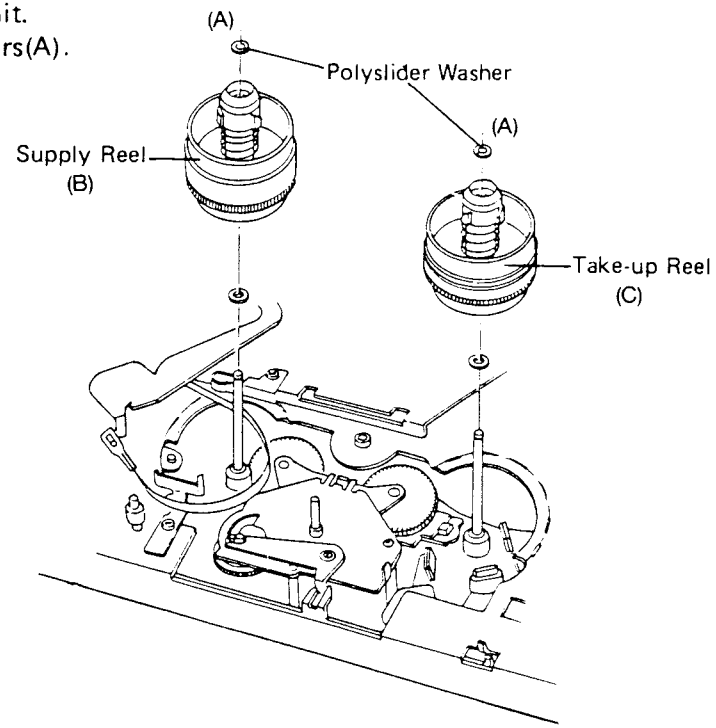
1. Remove 1 screw (E) and 1 screw (F) and azimuth spring(H).
2. Remove audio control head (I).



[4] REEL (SUPPLY & TAKE-UP)

(a) Remove front loading unit.

1. Remove polyslider washers(A).
2. Remove the reels(B), (C).



[5] GEAR HOLDER ASS'Y/CLUTCH

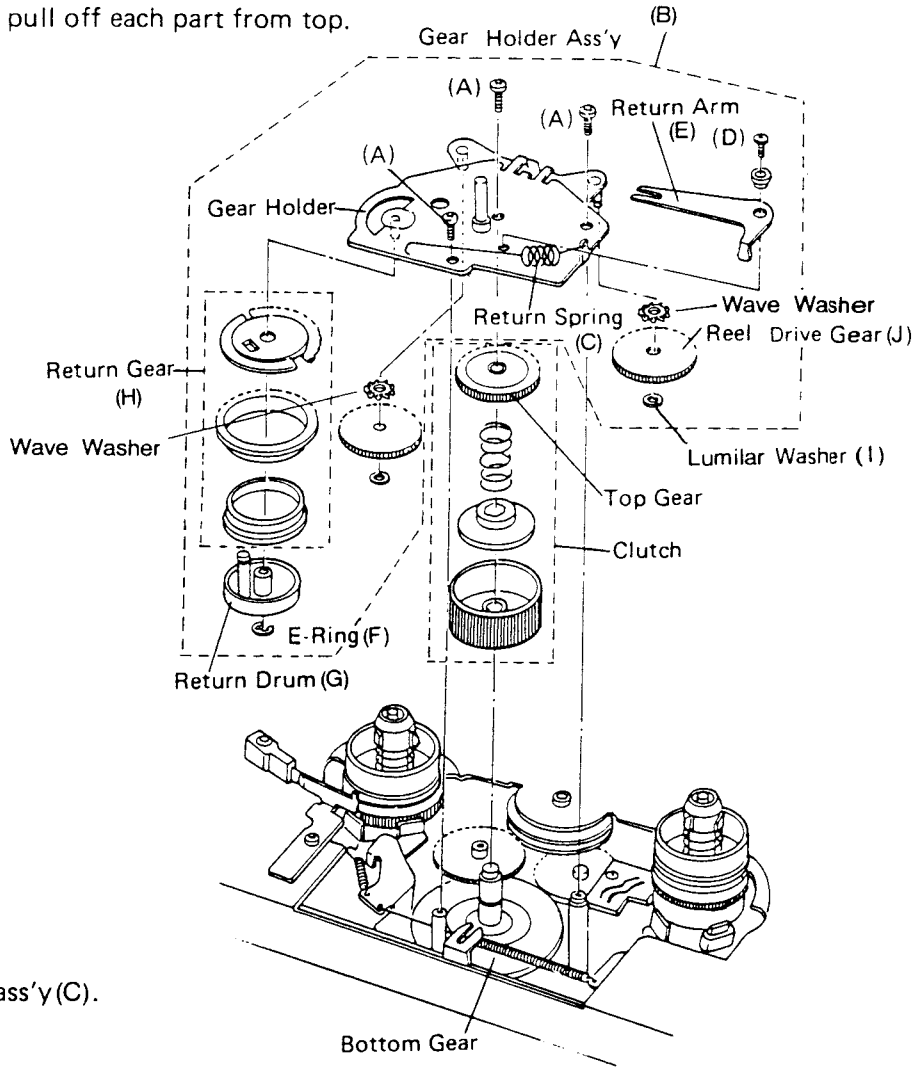
Gear Holder Ass'y

(a) Remove front loading unit.

1. Remove 3 screws (A), and gear holder ass'y(B).
2. Remove return spring(C).
3. Remove 1 screw (D) and return arm(E).
4. Remove E-Ring (F) and return drum(G) and return gear (H).
5. Remove polyslider washer (I) and then take off the reel drive gear(J).

Clutch

Top gear is pressed to insert so pull off each part from top.

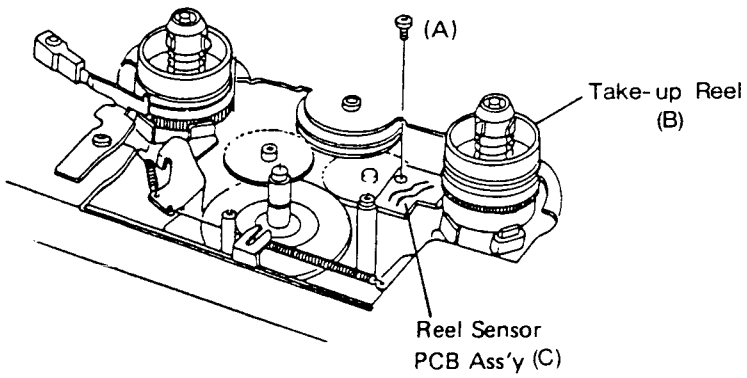


[6] REEL SENSOR

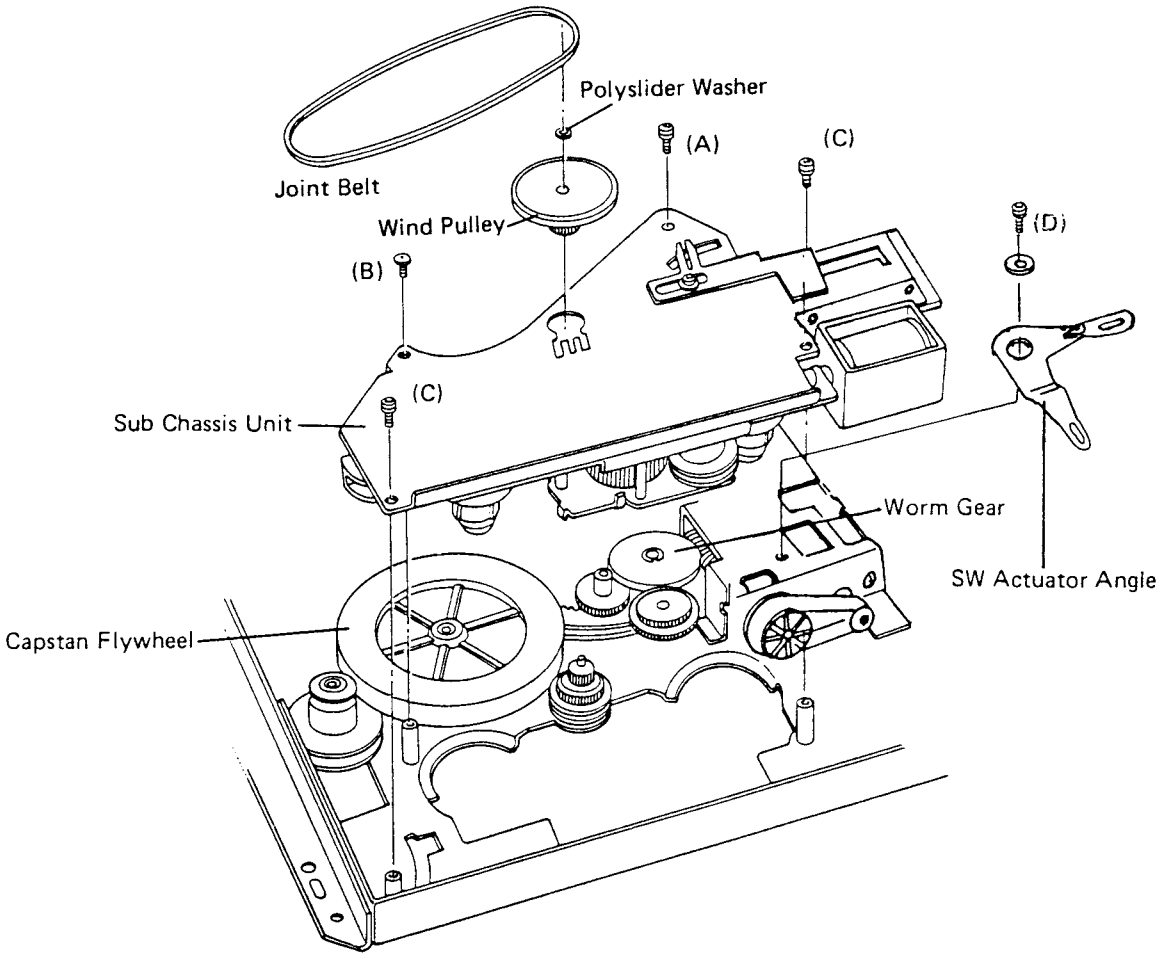
(a) Remove front loading unit.

(b) Remove gear holder ass'y.

1. Remove 1 screw (A).
2. Remove take-up reel(B).
3. Remove reel sensor PCB ass'y(C).



[7] SUB CHASSIS

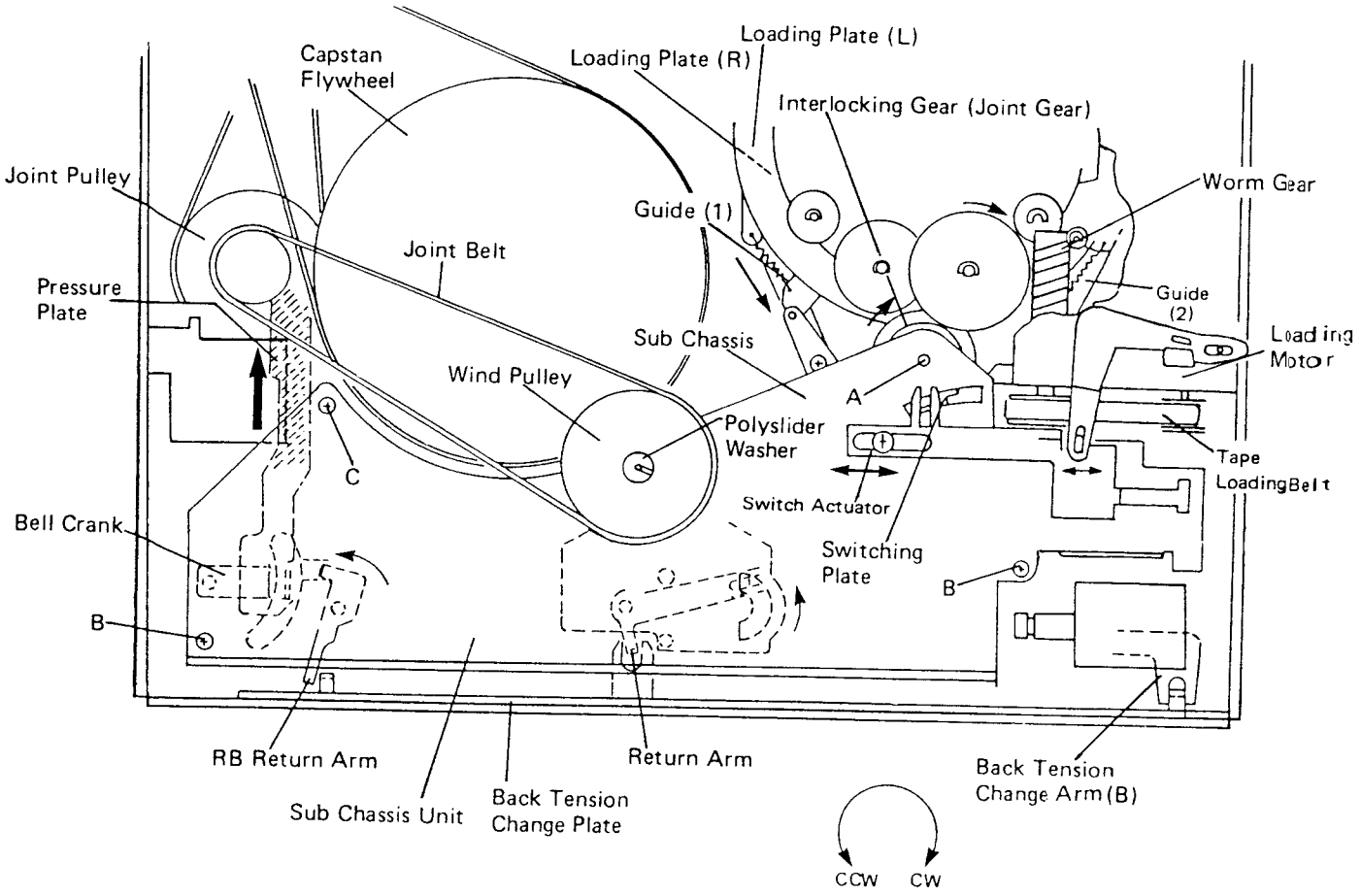


Take out of Sub Chassis Unit

1. Turn the Capstan Flywheel clockwise more than three times. (Because the levers, etc. are set at neutral.)
2. Remove the Joint Belt.
3. Remove the Polyslider Washer.
4. Pull out the Wind Pulley.
5. Remove 1 screw (D) and take off the SW Actuator Angle.
6. Remove 4 mount screws from sub chassis. (Ax1, Bx1 Cx2)
7. Take out the Sub Chassis Unit.

Mounting of Sub Chassis Unit

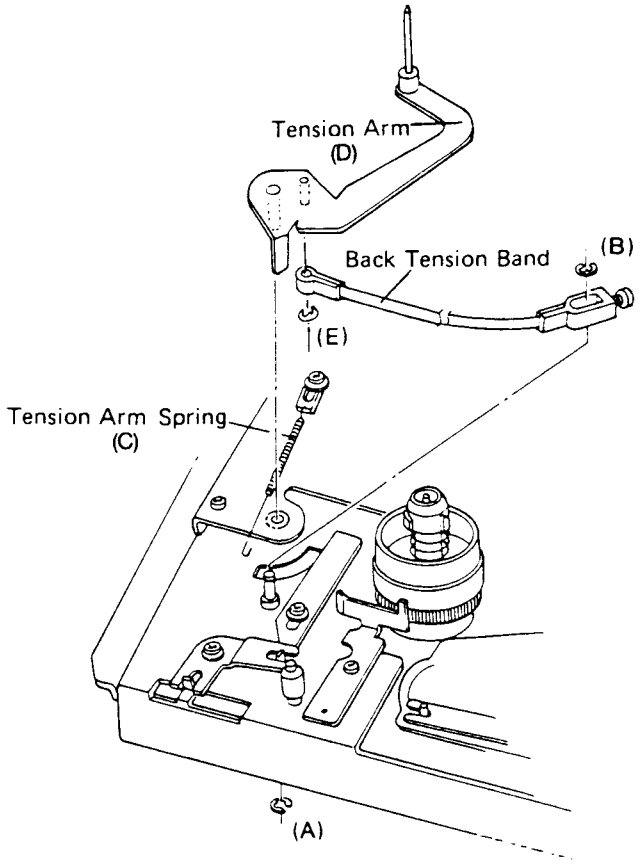
1. Turn the Return Arm in the direction of arrow mark.
2. Move the Back Tension Change Plate to the right direction extremely.
3. Turn the RB return arm to the direction of arrow mark extremely.
4. Turn the Loading Plates (L) and (R), and stop them at the position of hitting the wall of groove or just stop.
   This work is done by turning the pulley of the Worm Gear jointed to the Loading Motor.
5. Turn the Interlocking Gear in the direction of arrow mark (counterclockwise) extremely.
6. Mount the Sub Chassis Unit. At this time, make the band brake of back tension fit to the supply reel. (Top side)
7. Shake the Switch Actuator to right and left in order to confirm the engagement of interlocking gear.
8. Slide the Pressure Plate in the direction of arrow mark in order to connect the Pressure Plate with the Bell Crank.
9. Mount the Sub Chassis Unit with 4 small screws.
   (A x 1, B x 2, C x 1)
10. Insert the Wind Pulley.
11. Set the Polyslider Washer.
12. Mount the Joint Belt.
13. Confirm that the Return Arm is set to the calw of the Back Tension Change Plate.
    It is OK that following two operations are confirmed by turning the capstan flywheel.
    (1) When the Capstan Flywheel is turned counterclockwise (CCW), the Back Tension Change Arm moves to the left.
    (2) When the Capstan Flywheel is turned clockwise (CW), the Back Tension Change Arm moves to the right.



[8] TENSION ARM ASS'Y

Remove front loading unit.

1. Remove E-ring (A).
2. Remove E-ring (B).
3. Remove tension arm spring(C).
4. Remove tension arm (D).
5. Remove E-ring (E).

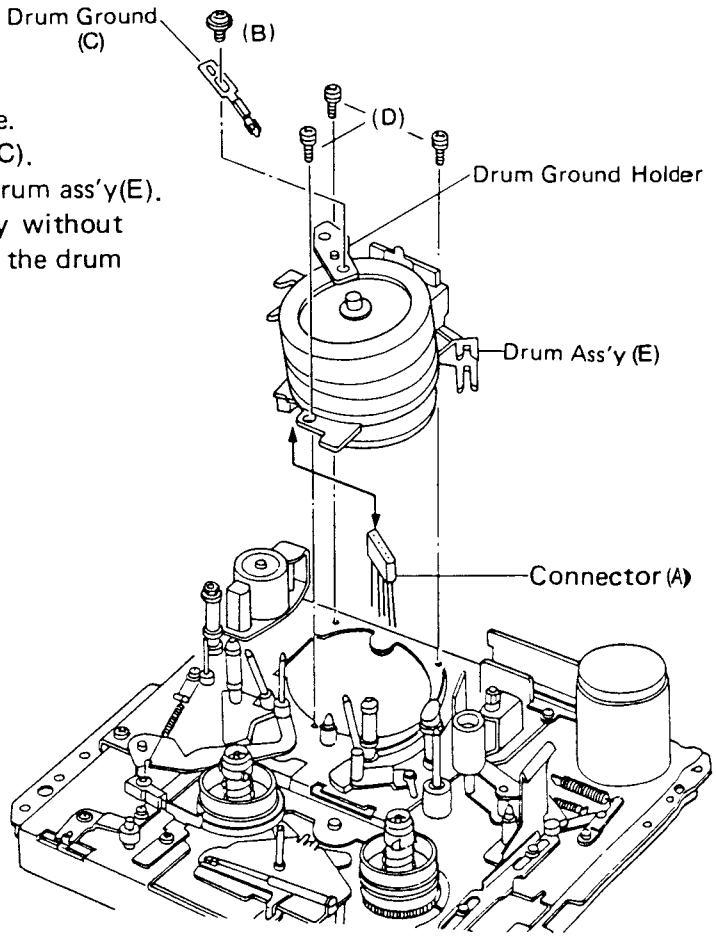


[9] DRUM ASS'Y

(a) Remove front loading unit.

1. Remove connector (A) from bottom side.
2. Remove a screw (B), and drum ground(C).
3. Remove 3 screws (D) and take off the drum ass'y(E).

Remark: Remove the drum ass'y carefully without any damage. Especially do not hit the drum ground holder.

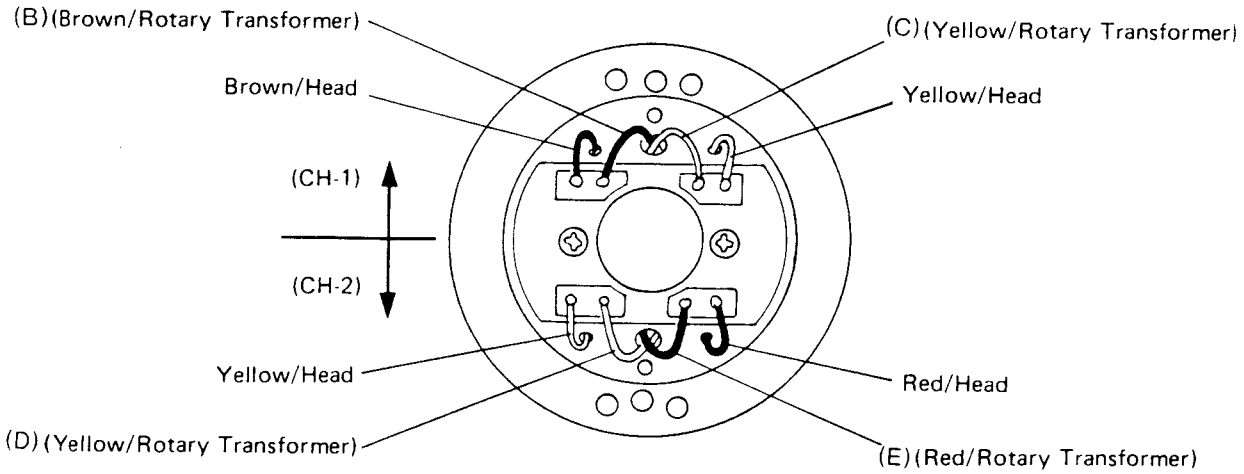


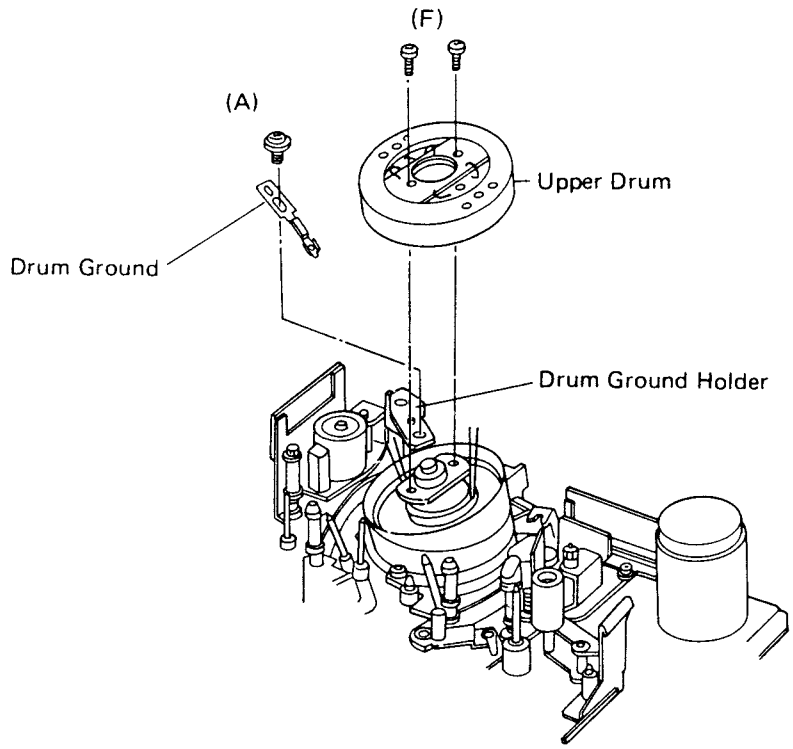
[10] UPPER DRUM

Remove front loading unit.

1. Remove 1 screw (A), and drum ground.
2. Resolder rotary transformer wires (B), (C), (D) and (E).
   Do not unsolder head wires.
3. Remove 2 screws (F).

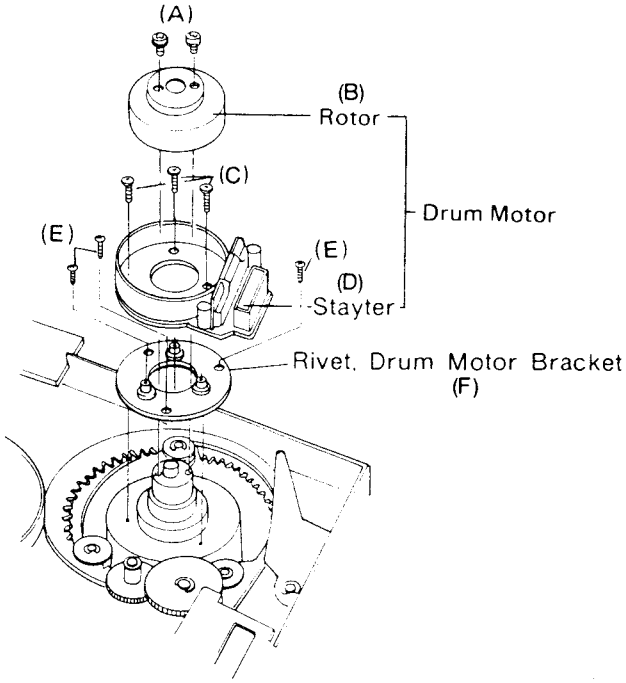
Remarks: 1) Use gloves and do not touch with bare finger or dust to drum face.
2) If the video head is defective, replace the complete upper drum with head.

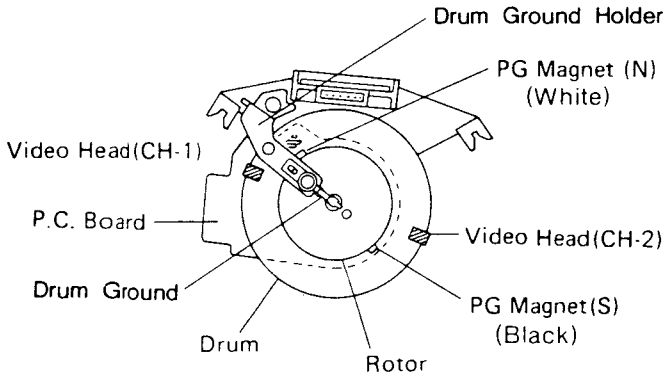




[11] DRUM MOTOR

1. Remove 2 screws (A).
2. Remove the rotor (B).
3. Remove 3 screws (C).
4. Remove stayter(D).
5. Remove 3 screws (E).
6. Remove Rivet, Drum Motor Bracket(F).

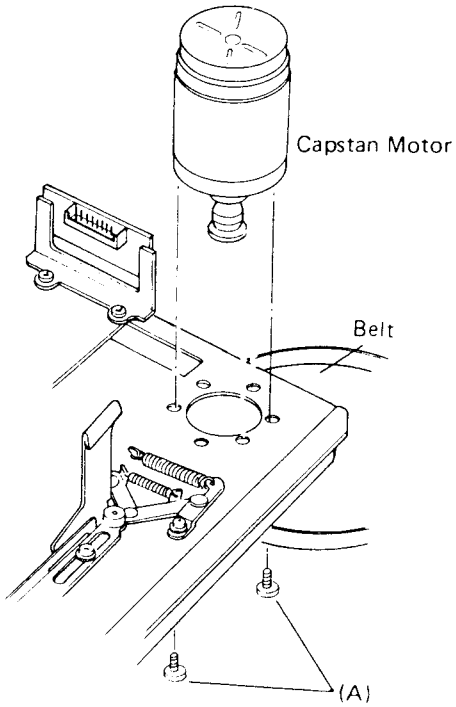




DRUM Ass'y (Top View)

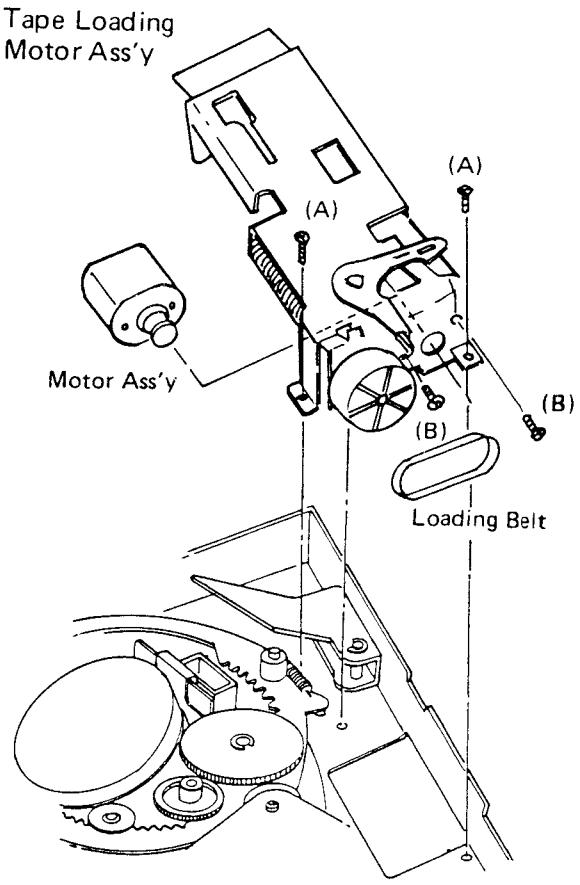
[12] CAPSTAN MOTOR

1. Take off the belt from capstan motor.
2. Remove 2 screws (A).



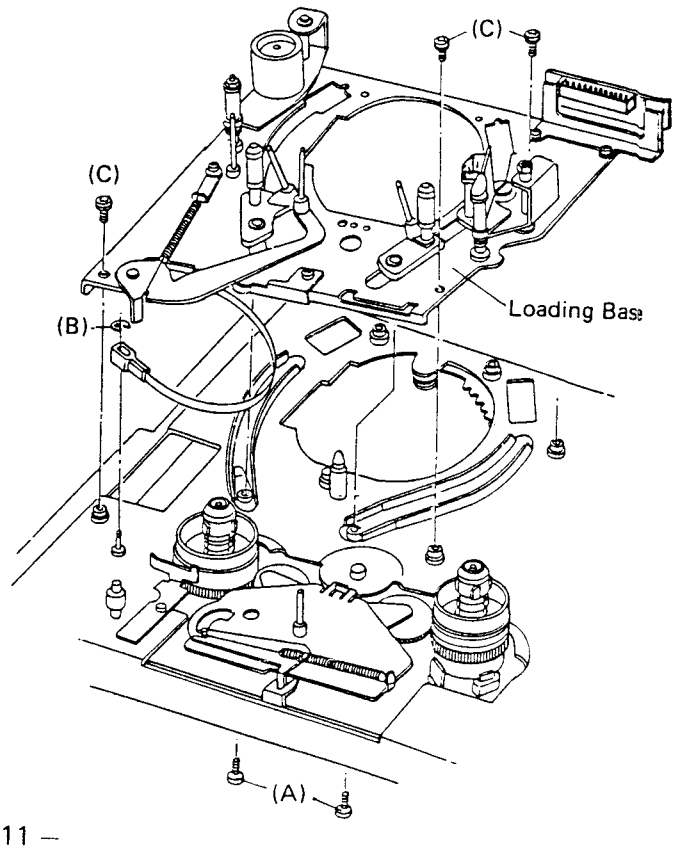
[13] TAPE LOADING MOTOR

1. Remove 2 screws (A).
2. Take off Tape Loading Motor Ass'y .
3. Take off Loading Belt.
4. Remove 2 screws (B) and take off Motor Ass'y.



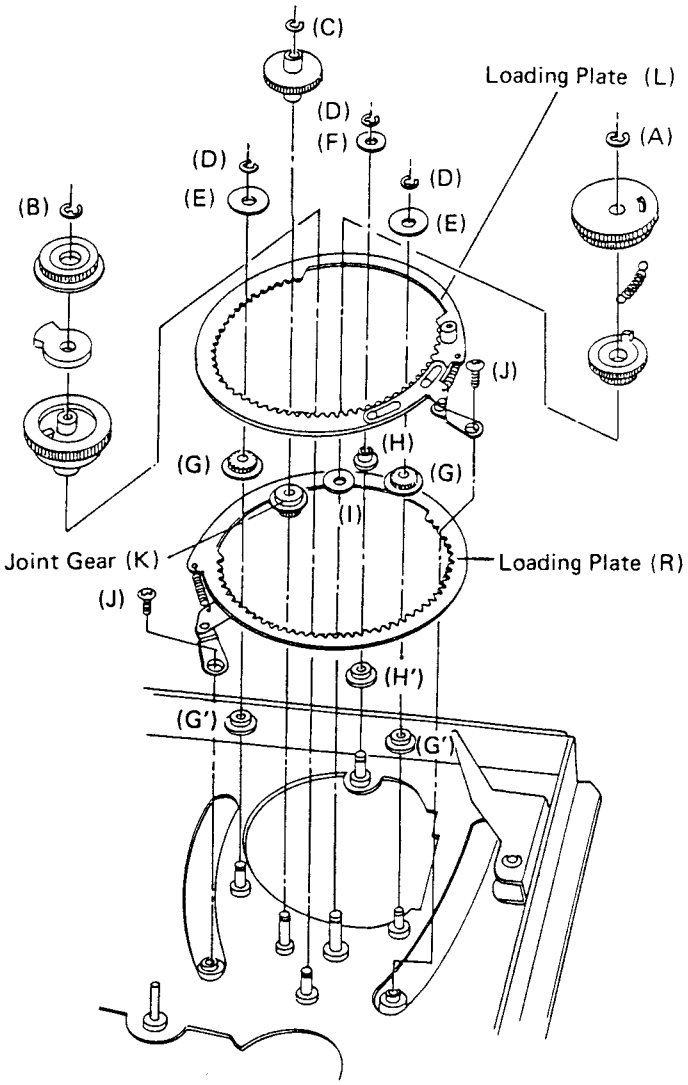
[14] LOADING BASE

1. Remove Motor Ass'y and Drum Ass'y.
2. Remove 2 screws (A) from bottom.
3. Remove E-ring (B).
4. Remove 3 screws (C).
5. Take off the Loading Base.



[15] LOADING GEAR

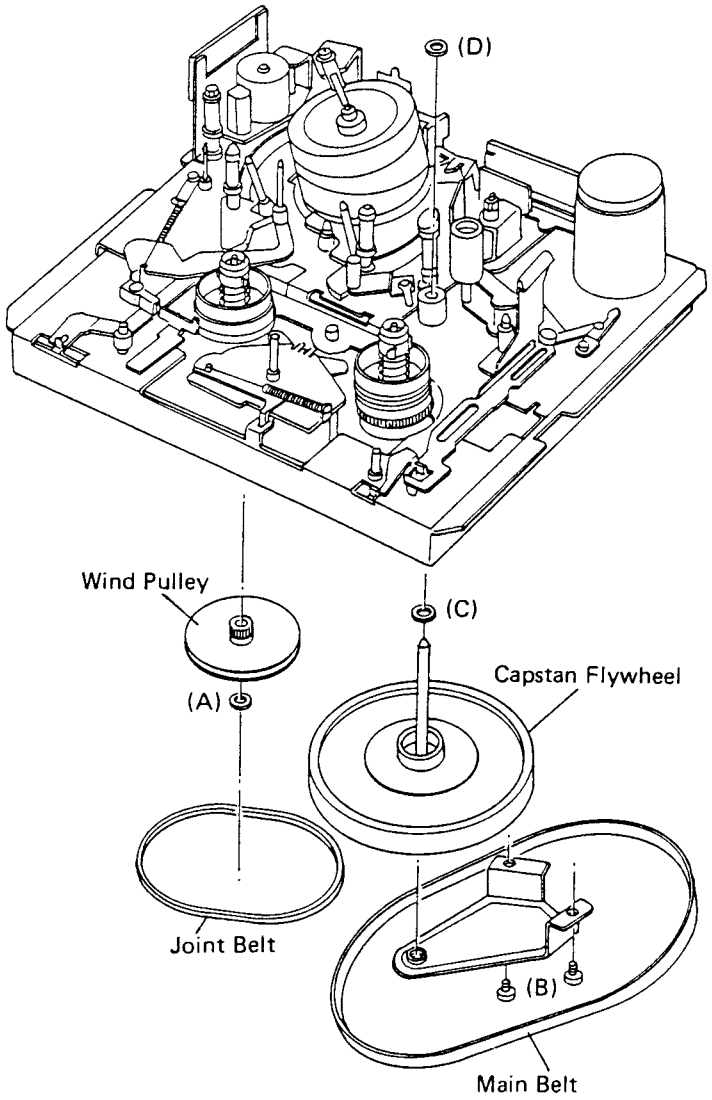
1. Remove Sub-Chassis Unit Flywheel and Front Loading Motor Ass'y.
2. Remove E-ring (A) and take off Gear Ass'y.
3. Remove E-ring (B) and take off Gear Ass'y.
4. Remove E-ring (C) and take off Gear Ass'y.
5. Remove 3 E-rings (D), 2 Plate Washers (E) and 1 Plate Washer (F).
6. Remove 2 screws (J).
7. Take off the Loading Plate (L).
8. Take off the Joint Gear (K), 2 Guide Gears (G), Guide Roller (H) and Plate Washer (I).
9. Take off the Loading Plate (R).
10. Take off 2 Guide Gears (G') and Guide Roller (H').



[16] CAPSTAN FLYWHEEL

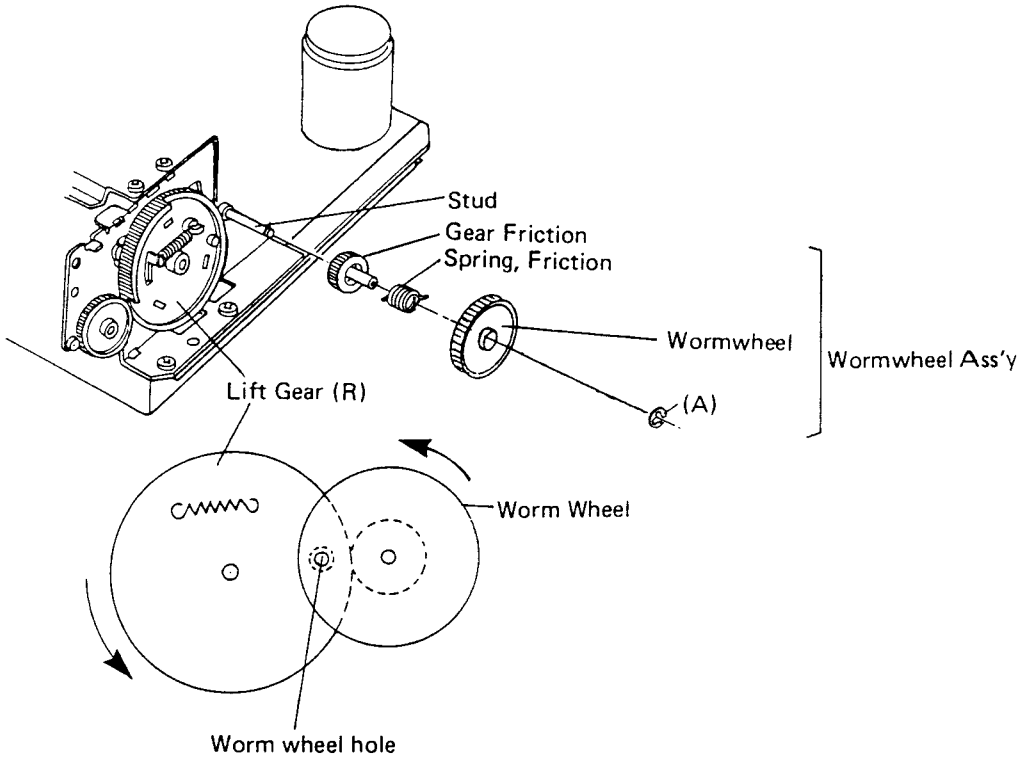
1. Remove Front Loading Unit.
2. Take off the Joint Belt and Main Belt.
3. Take off the Polyslide Washer (A) and Wind Pulley.
4. Remove 2 screws (B).

Remark: Do not miss the washer (C) and (D) when pull out the capstan flywheel.

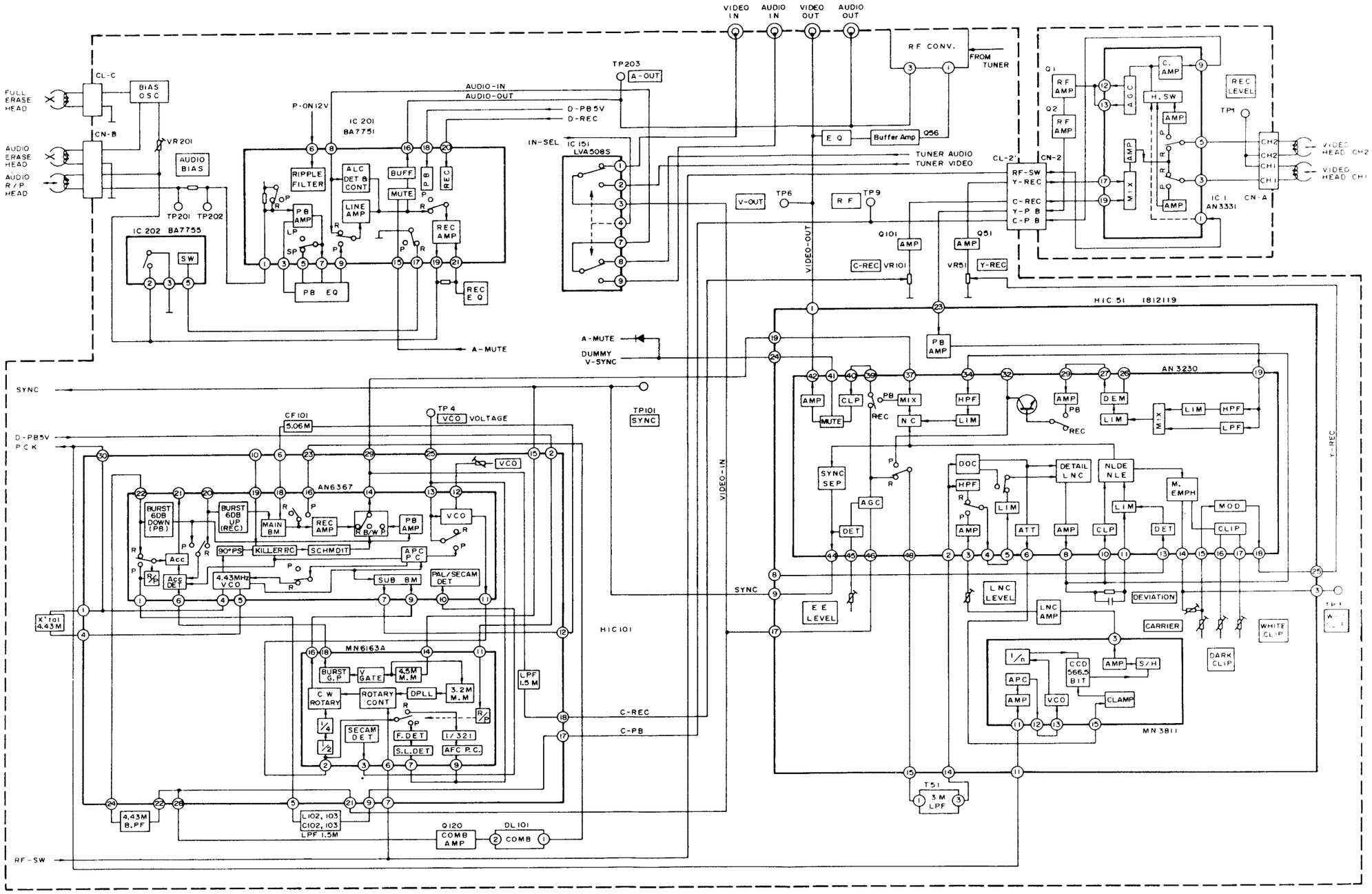


[18] FRONT LOADING WORMWHEEL UNIT

- DISASSEMBLY
  1. Remove E-ring (A).
  2. Remove Wormwheel Ass'y. (Wormwheel, Spring Friction, Gear Friction.)
- ASSEMBLY
  1. Turn Lift Gear (R) fully counterclockwise.
  2. Restore Wormwheel Ass'y to Stud.
     Match Lift Gear (R) to Wormwheel Hole as illustrated.

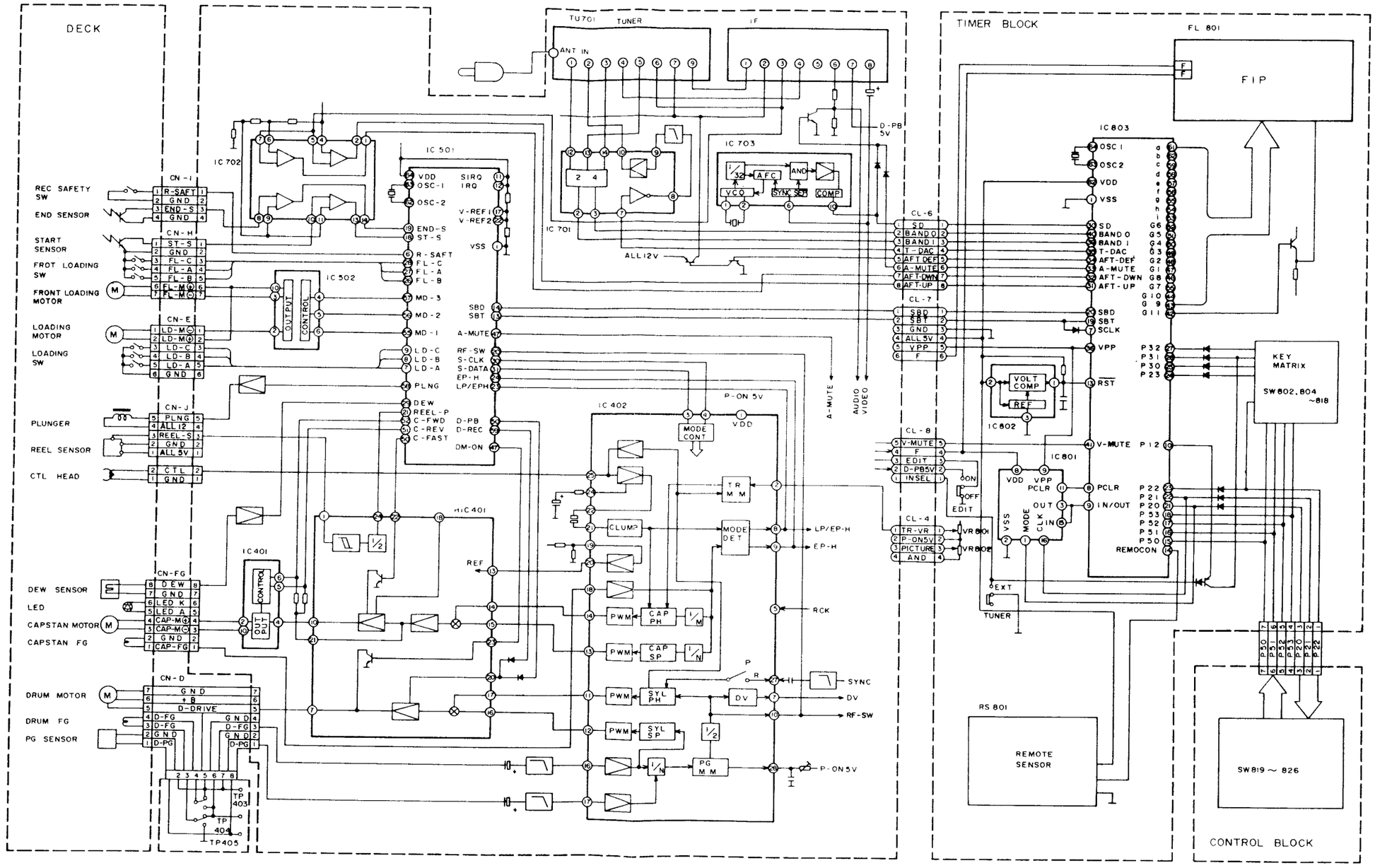


BLOCK DIAGRAM (VIDEO/AUDIO)



BV-2

BLOCK DIAGRAM (SERVO/SYSCON/TUNER/TIMER/CONTROL)



BS-1

DECK ADJUSTMENT

1. Audio/control head height and azimuth adjustment.
   1. Connect CH1 of oscilloscope to AUDIO OUT. (Fig. 4-14)

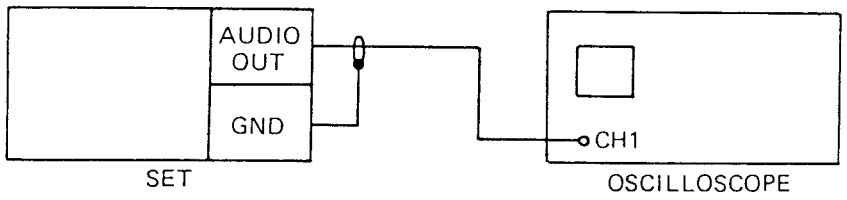
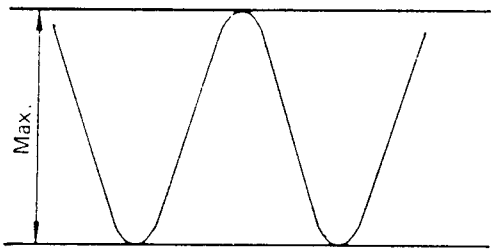
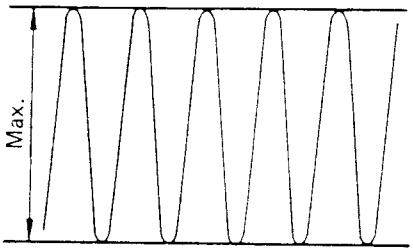


Fig. 4-14

2. Playback test tape F-6A 1kHz Audio Signal.
3. Adjust nut Ⓐ to obtain maximum audio output level (Fig.4-15/17)
4. Playback test tape F-6N (6kHz Audio Signal)
5. Adjust screw Ⓒ to obtain maximum audio output level (Fig.4-16/17)
6. Check that smooth tape transportation at the take-up guide pole. Especially tape separate and wrinkling. If these problem occur Pre-adjust Ⓐ and Ⓒ. (Fig.4-17)
7. Adjust screw Ⓑ to obtain maxium audio output level. (Fig.4-16/17)



1 kHz Fig. 4-15



6 kHz Fig. 4-16

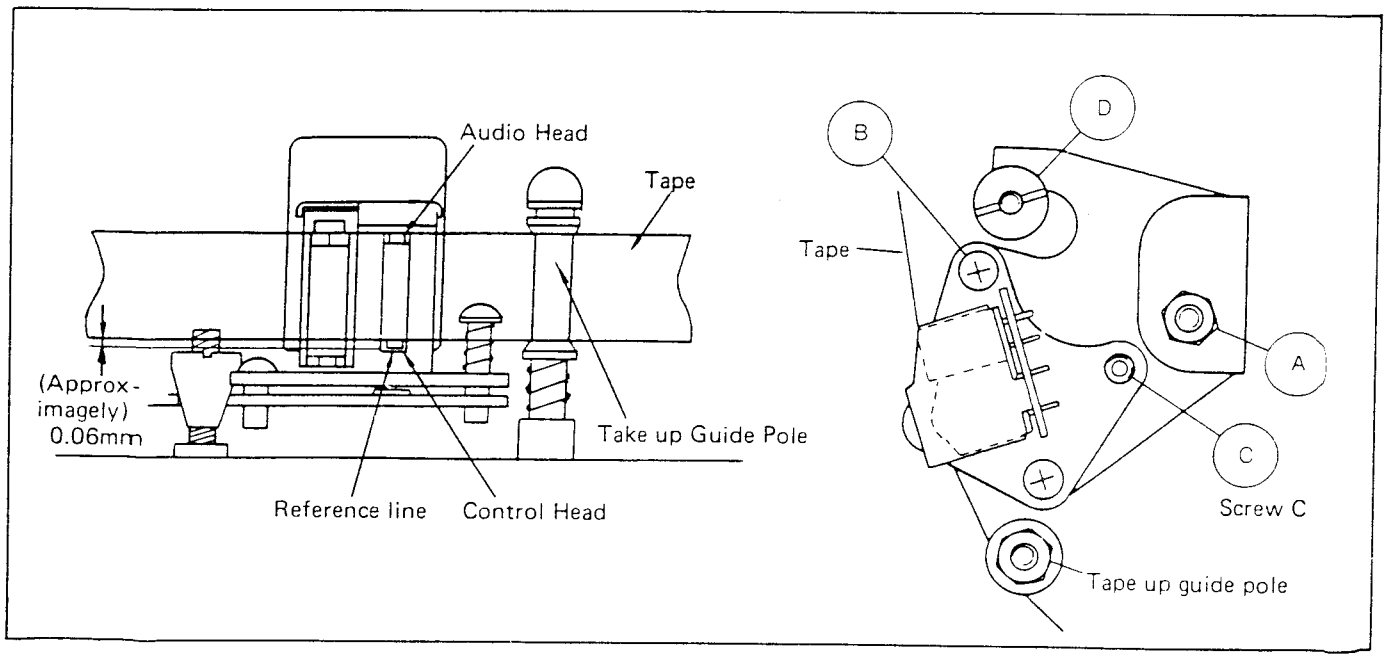


Fig. 4-17 A/C Head Adjustment

2. FM peak adjustment
   1. Connect CH1 of oscilloscope to TP9.
   2. Connect CH2 of oscilloscope across TP401 and Ground.
   3. Set oscilloscope to TRIGGER mode.

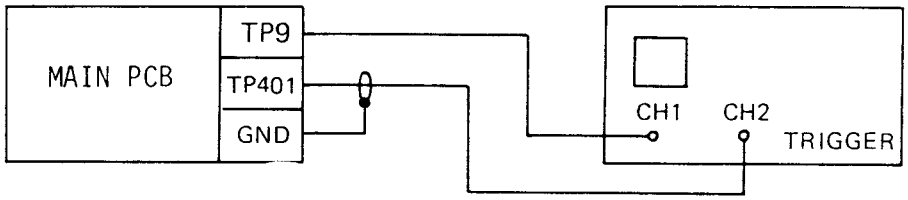


Fig.4-18

   4. Playback test tape F-6N (stair step without color signal).
   5. Adjust screw Ⓓ to obtain maximum FM output level. (Fig. 4-17,4-19)

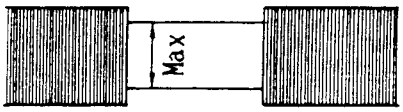


Fig.4-19

3. FM waveform adjustment

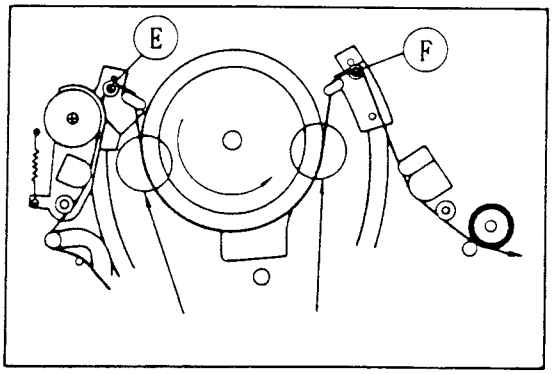


Fig.4-20

   1. Connect CH1 of oscilloscope to TP9.
   2. Connect CH2 of oscilloscope across TP401 and GND.
   3. Set oscilloscope to TRIGGER mode.

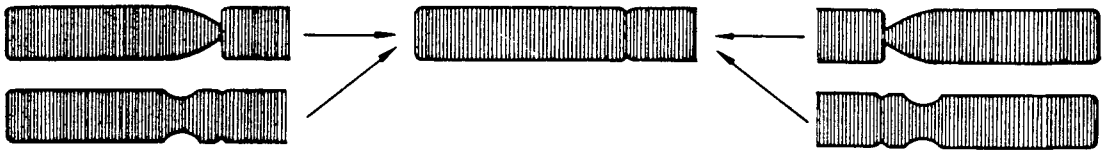


Fig. 4-21 Fig. 4-22 Fig.4-23

   4. Playback test tape F-6N (stair step without color signal).
   5. If the FM waveform observing by oscilloscope as same as shown in Fig. 4-21, adjust screw Ⓕ until waveform becomes as shown in Fig. 4-22.
   6. If the FM waveform observing by oscilloscope is as same as shown inFig.4-23, adjust screw Ⓔ until wave form becomes as shown in Fig. 4-22.

NOTE: 1. Confirm that Electrical Adjustment (Video Head Switching Point and CTL Preset) has been done before Deck Adjustment.
2. Deck Adjustment should be done at Tracking Volume center position.

Service schedule of components

○:Check ●:Replace

Deck		Periodic Service Schedule			
Ref.No	Parts Name	1000 hr	2000 hr	3000 hr	4000 hr
2	Drum, upper with video head	○	●	○	●
224	Pinch Roller (A)		●		●
301	Ass'y, Clutch		●		●
392	Motor Ass'y, Capstan		●		●
651	Motor with Pulley			●	
702	Motor Ass'y, Loading			●	
373	Belt, Main		●		●
393	Belt, Drive		●		●
394	Belt, Joint		●		●
659	Belt, TL		●		●
338	Shue, Brake		●		●
193	Flat Ass'y, Back Tension		●		●
16	Ground, Drum			●	
142	Head, Audio/Control			●	
178	Head, Full Erase			●	
281	Reel Ass'y, Supply			●	
282	Reel Ass'y, Take-up (B)			●	
311	Clutch Ass'y, RF (B)		●		●

－How to service the defective units.－

1. Clean all parts for the tape transportion.
   Drum, upper with video head／Pinch Rollre
   Audio/Control head／Full erase head
2. After clean up the parts must be confirmed all DECK ADJUSTMENT.

ALIGNMENT INSTRUCTIONS

PREPARATION

Electrical adjustments are required after replacing circuit components and certain mechanical parts. It is important to perform these adjustments only after all repairs and replacements have been completed. Also, do not attempt these adjustments unless the proper equipment is available.

REQUIRED TEST EQUIPMENT

1. Oscilloscope : Dual-trace with 10 : 1 prove.
2. Frequency Counter
3. Color Monitor
4. Pattern Generator (Color bar with 100% white)
5. AC Voltmeter (RMS)
6. Alignment Tape F6-A (Color bar with 100% white)

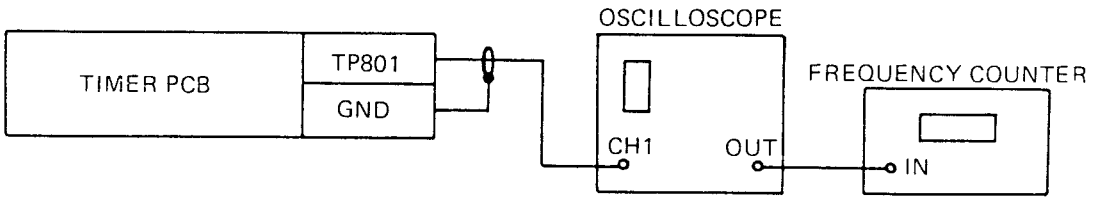


Fig. 1

No.	Item	Test point	Adjustment point	Method	Connection Figure
1	Timer clock E-E Mode	TP801 Ground	TC801	1. Connect the oscilloscope across. TP801 and Ground. 2. Connect the frequency counter to oscilloscope out. 3. Make adjustment by TC801 so that the indication of frequency counter becomes 524.288 kHz ± 1Hz.	Fig. 1

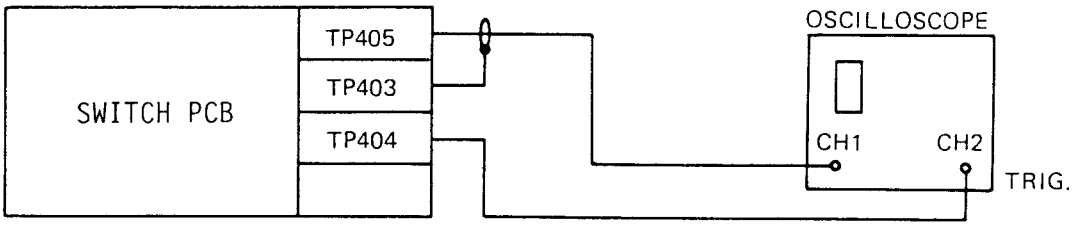
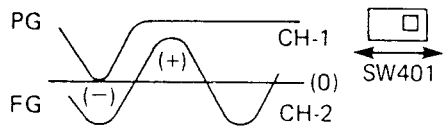


Fig. 2

No.	Item	Test point	Adjustment point	Method	Connection Figure
2	Drum PG/FG polarity Adjustment (P.B. Mode) Test Tape F6-A	TP403 (GND) TP404 (FG) TP405 (PG)	SW401	1. Connect CH1 of oscilloscope across. TP405 and Ground (TP403). 2. Connect CH2 of oscilloscope to TP404. 3. Set oscilloscope mode to (−) Trigger. 4. Set SW401 either position so that PG, FG pulse becomes as shown below. 	Fig. 2

* SW401 adjustment only needs when the deck is replaced.

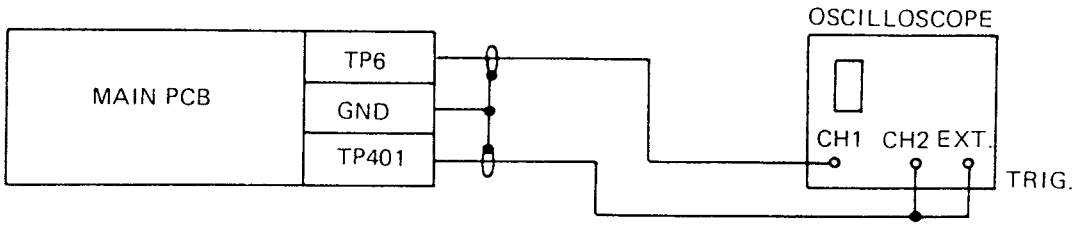
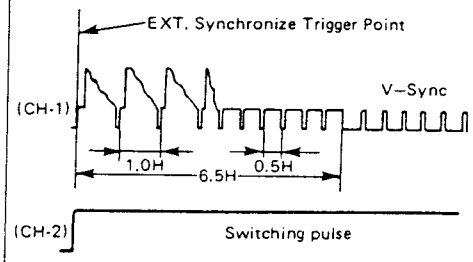


Fig. 3

No.	Item	Test point	Adjustment point	Method	Connection Figure
3	Switching point Adjustment Test Tape F6-A	TP6 TP401	VR401	1. Connect CH1 to TP6 of VIDEO-OUT and CH2 toTP401, and set EXT. Trigger mode (+) Trigger. 2. Playback the tape and adjust by VR401 so that the Vsync front edge of CH1 video output waveform comes the position where 6.5H is delayed from the rising of CH2 Head Switching Pulse waveform. 	Fig. 3

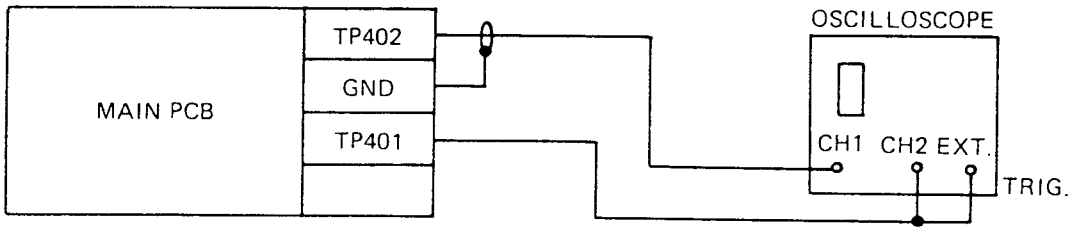
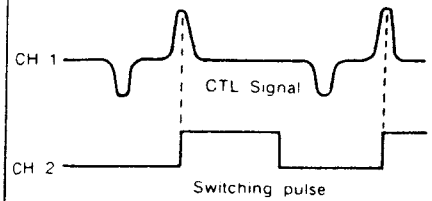
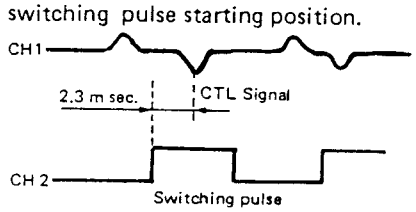


Fig. 4

No.	Item	Test point	Adjustment point	Method	Connection Figure
4	CTL Preset Adjustment (P.B. mode) Test tape F6-A 5. Adjust VR402 so that the falling of CTL ** waveform of CH1 becomes same position with rising of switching pulse of CH2.  ** 2 SPEED MODEL ONLY.	TP402 TP401	VR402	1. Connect CH1 of oscilloscope across TP402 and Ground. 2. Connect CH2 of oscilloscope across TP401 and Ground. 3. Set oscilloscope mode to EXT. Trigger (+) Trigger. 4. Playback the tape by setting tracking volume at center click position. 5. Adjust VR402 to make a position of CTL * signal where delated 2.3m sec. from switching pulse starting position.  * 1 SPEED MODEL ONLY.	Fig. 4

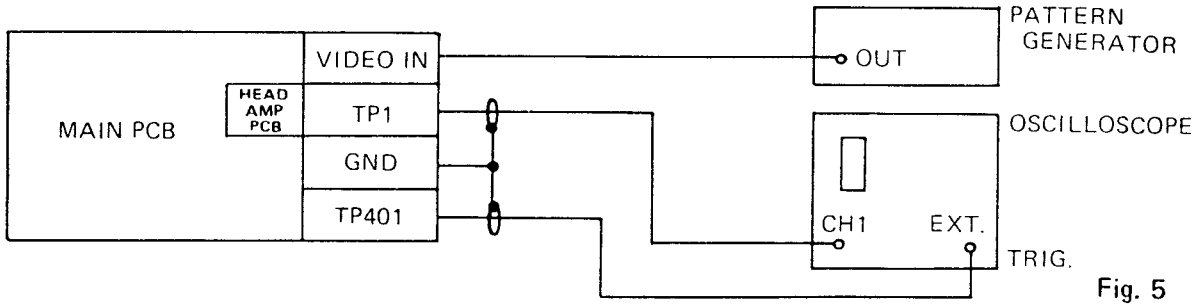
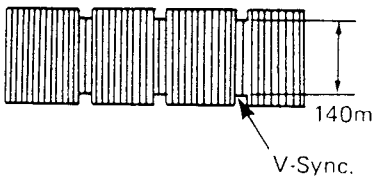


Fig. 5

No.	Item	Test point	Adjustment point	Method	Connection Figure
5	Rec. Current Adjustment (Rec. Mode) Blank tape	TP1 (GND) TP401	VR51 VR101	1. Connect CH1 of oscilloscope across TP1 and Ground. 2. Connect EXT. Trig. of osilloscope across TP101 and Ground. 3. Turn VR51 to fully clockwise direction 4. Input RED only signal to VIDEO INPUT. 5. Adjust by VR101 so that chroma level becomes 25mVp-p, ± 3mV.  25mVp-p 6. Adjust by VR51 so that V-Sync level becomes 140mVp-p ± 10mV.  140mVp-p V-Sync.	Fig. 5

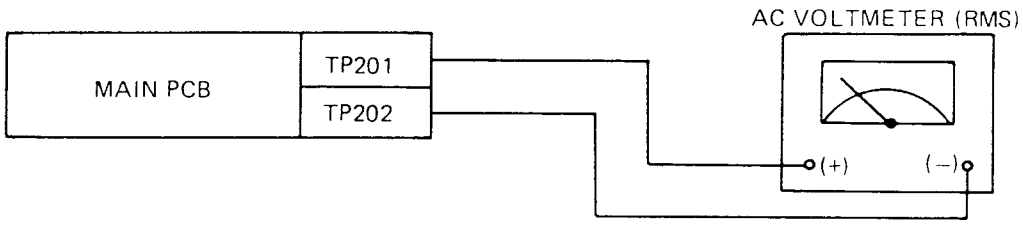
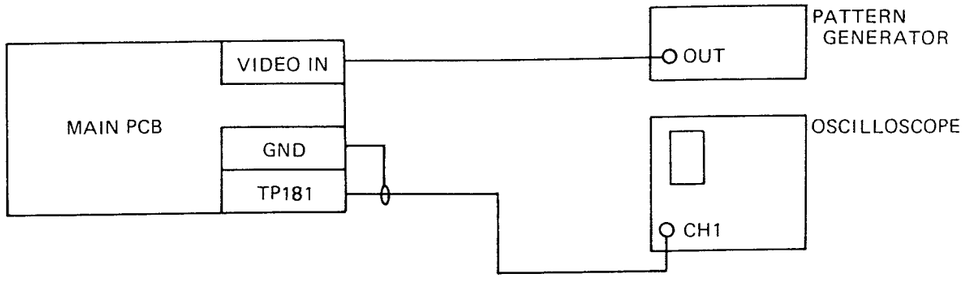


Fig. 6

No.	Item	Test point	Adjustment point	Method	Connection Figure
6	REC Bias Current	TP201 TP202	VR201	1. Set the REC status by the blank tape. (Do not set the PAUSE. In PAUSE mode, the bias oscillation is stopped.) 2. Connect the AC voltmeter to TP201 and TP202. 3. Adjust by VR201 so that the voltage becomes 22 mV.	Fig. 6

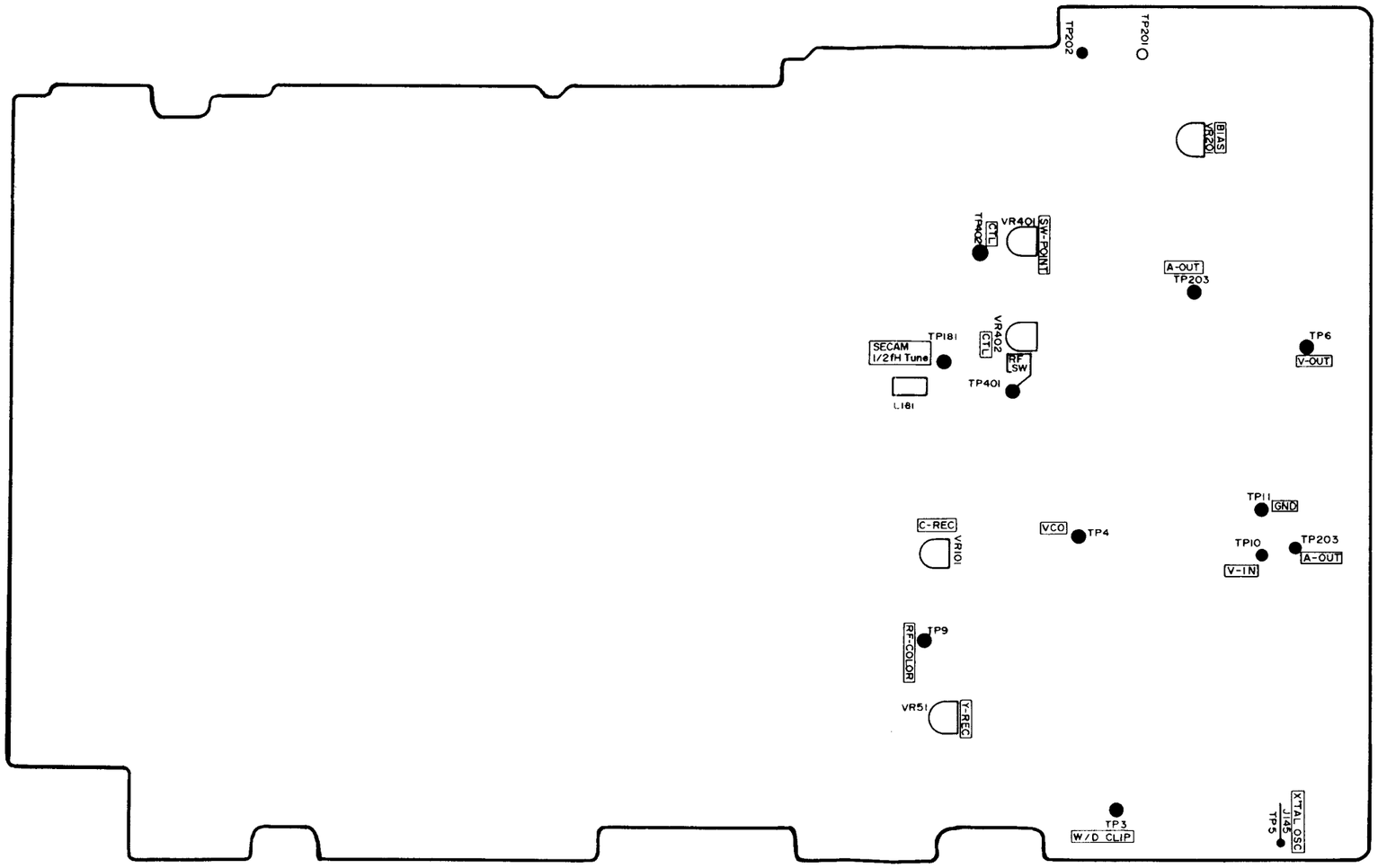


No.	Item	Test point	Adjustment point	Method	Connection Figure
7. *	SECAM 1/2 fH Tune Adjustment (Rec. Mode) Blank tape	TP181 GND	L181	1. Connect the equipment as shown in Fig. 7. 2. Input SECAM color bar to VIDEO IN. 3. Adjust L181 to make maximum output level.	Fig. 7

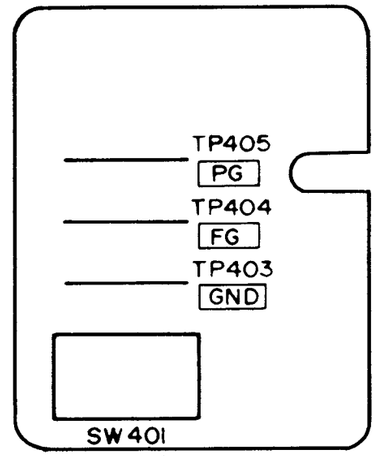
* Note: Require this adjustment for ME-SECAM model only.

TEST POINTS AND ALIGNMENT POINTS

MAIN PCB

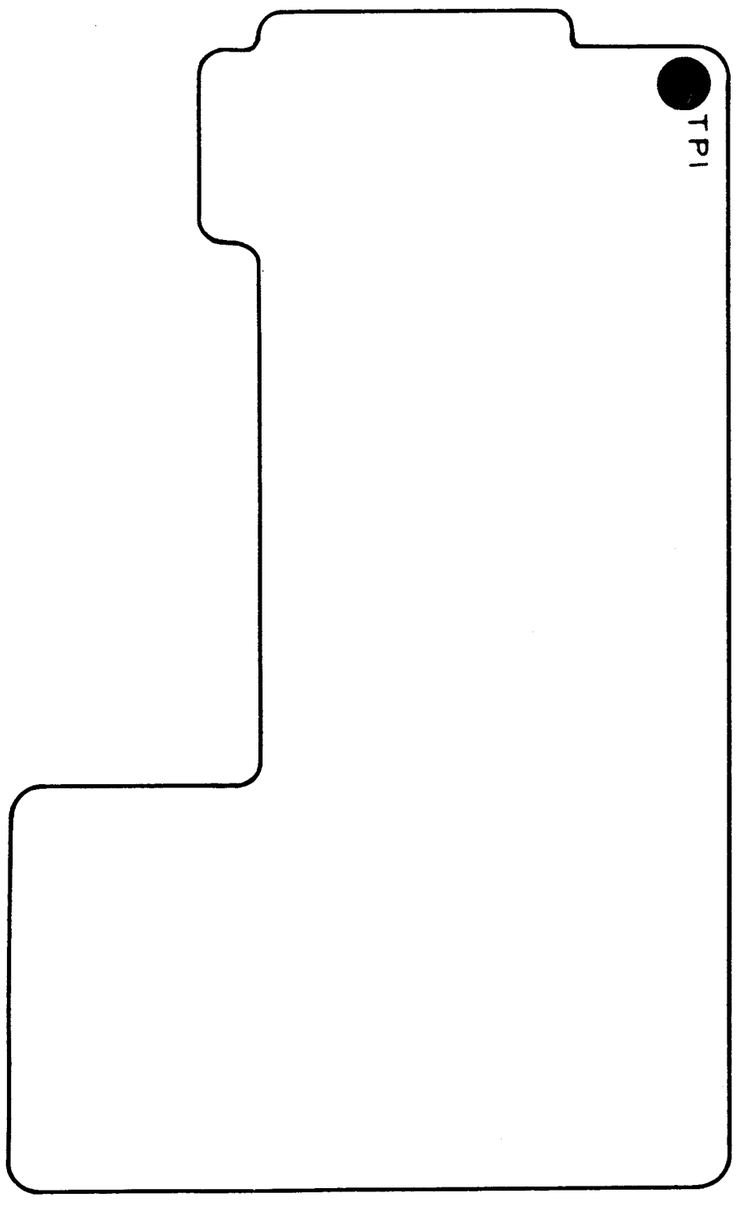


SWITCH PCB

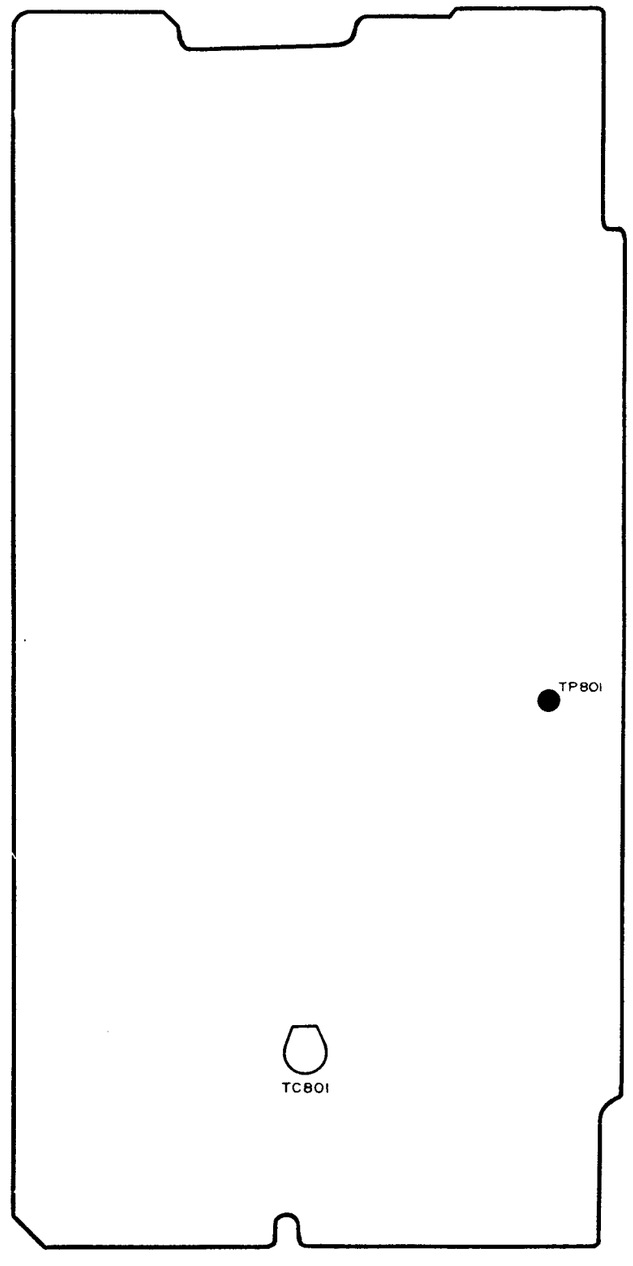


TEST POINTS AND ALIGNMENT POINTS

HEAD AMP PCB



TIMER PCB



TROUBLESHOOTING GUIDE

Step 1

AC power cord into power outlet.

Step 2

Push power button.

Step 3

Set TV channel selector to receive channel.

Step 4

Set TV channel selector to RF converter channel.

Step 5

Insert cassette tape.

Step 6

Push clock /counter button to COUNTER MODE " 0000 ".
Push counter MEMORY button to " 0000 MEMO " Push REC. button.

Step 7

Tape is automatically rewound when it reached tape end.

Step 8

Push PAUSE button during recording.

Step 9

Push STOP button during recording.

Step 10

Push REW (F.F.) button.

Step 11

VCR is automatically STOP when counter shows around " 0000 ".

Step 12

Push PLAY button.

Step 13

Check Picture during playback.

Step 14

Check the Sound during playback.

Step 15

Check the special variable speed playback.

Step 16

Push STOP button during playback.
Push EJECT button.

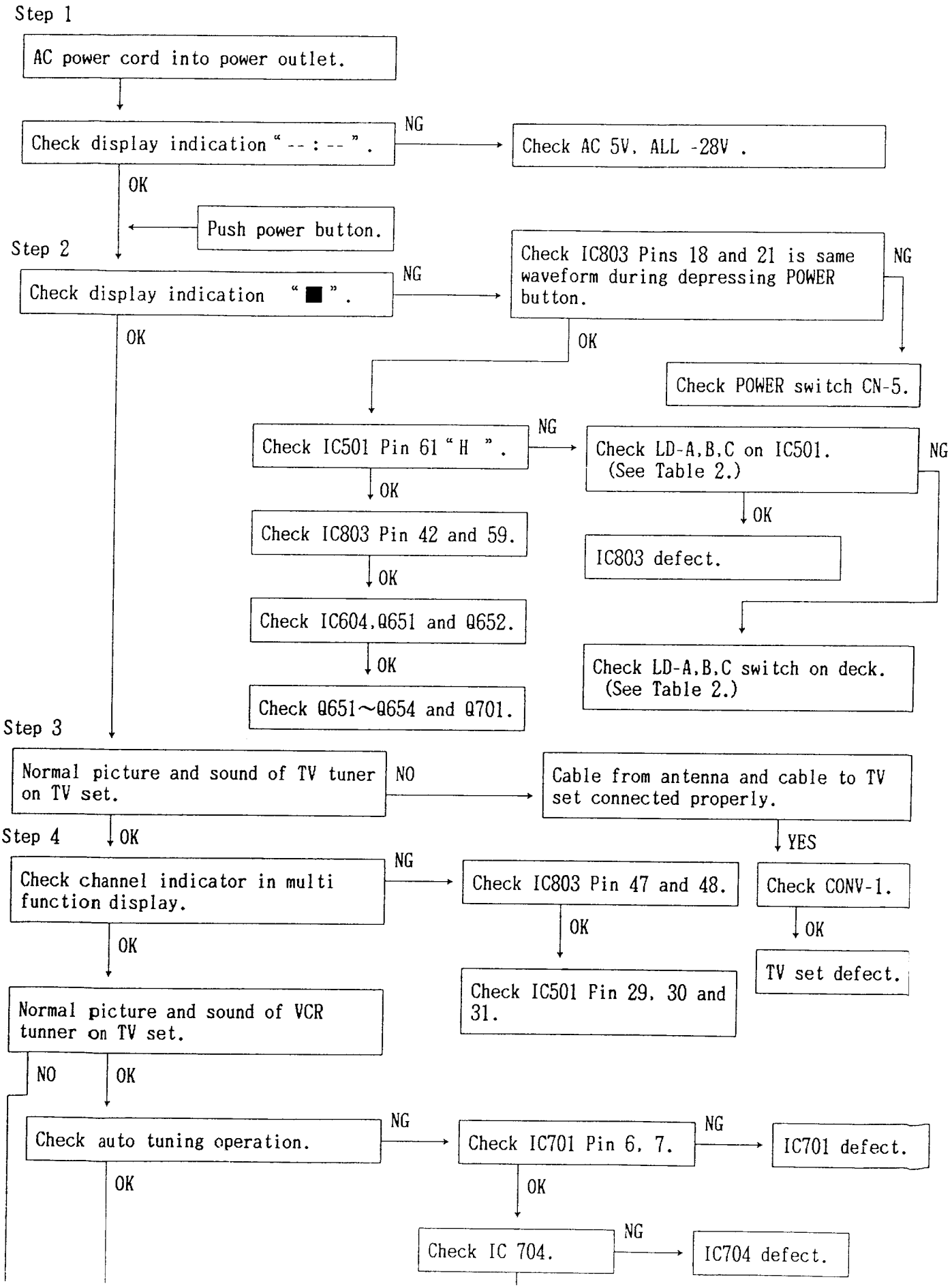
Step 17

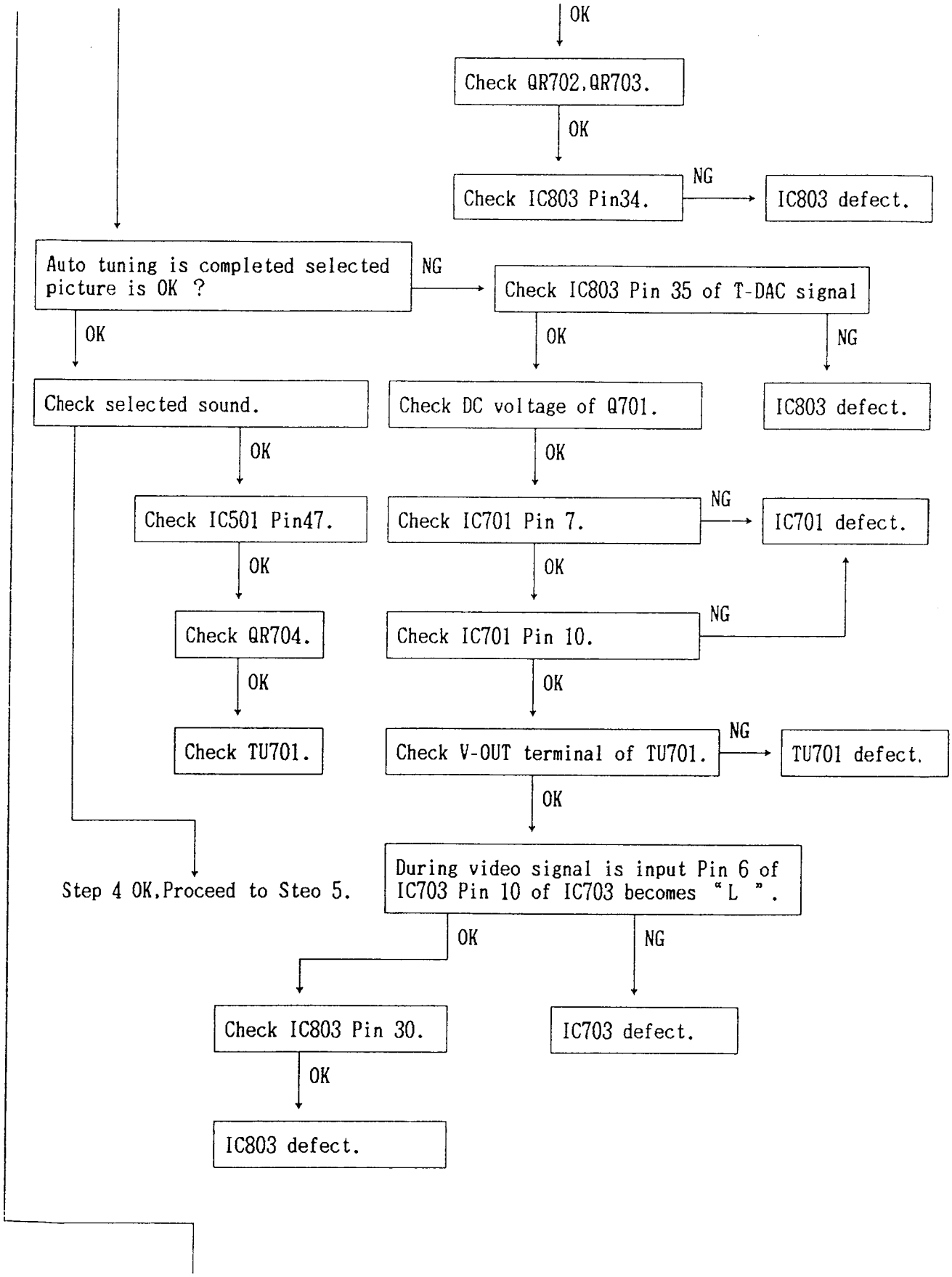
Set power button to OFF.

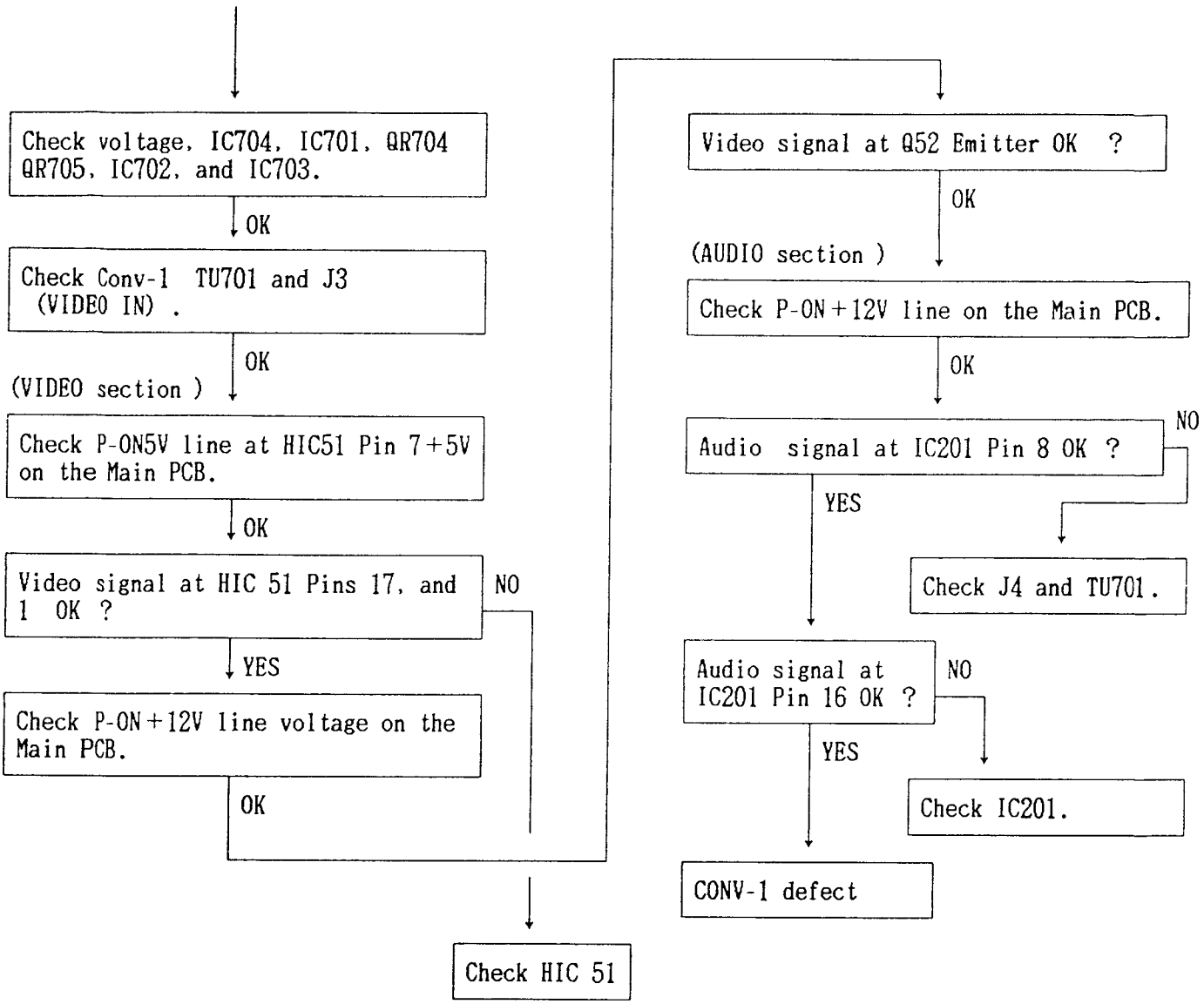
END

Step 18

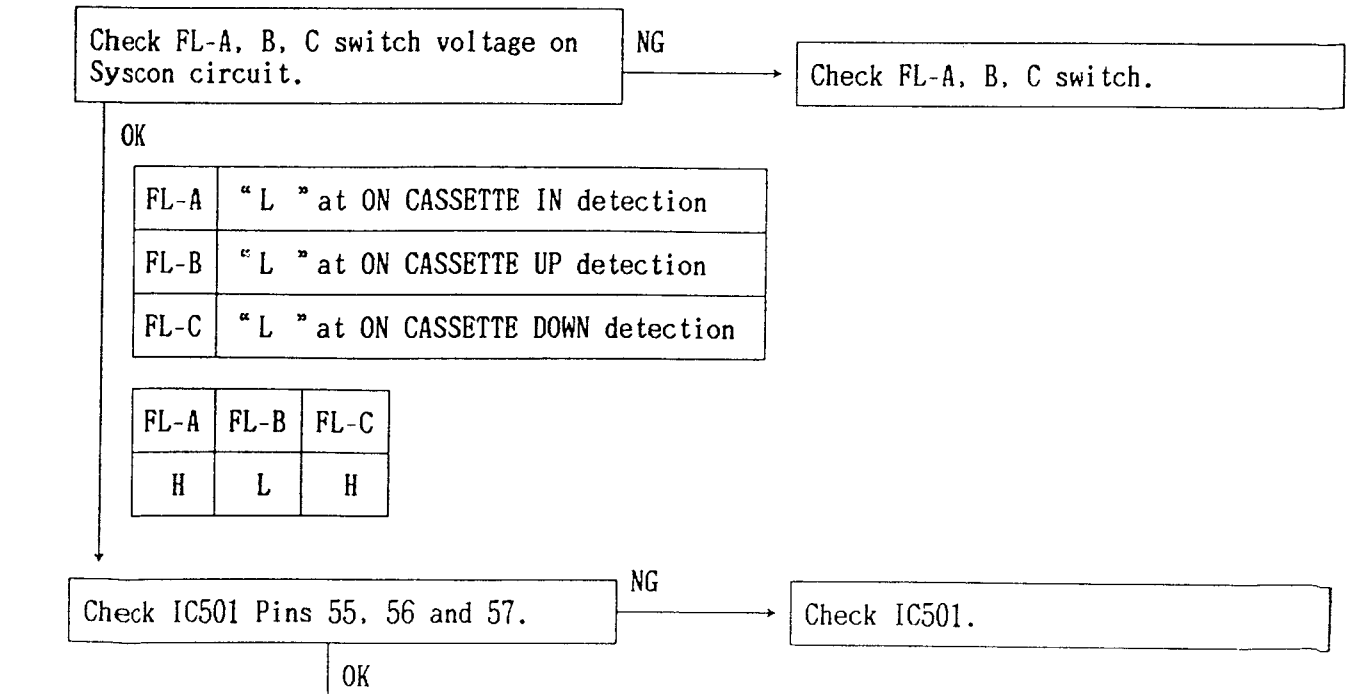
Check SYSTEM CONTROL IC. (IC501)

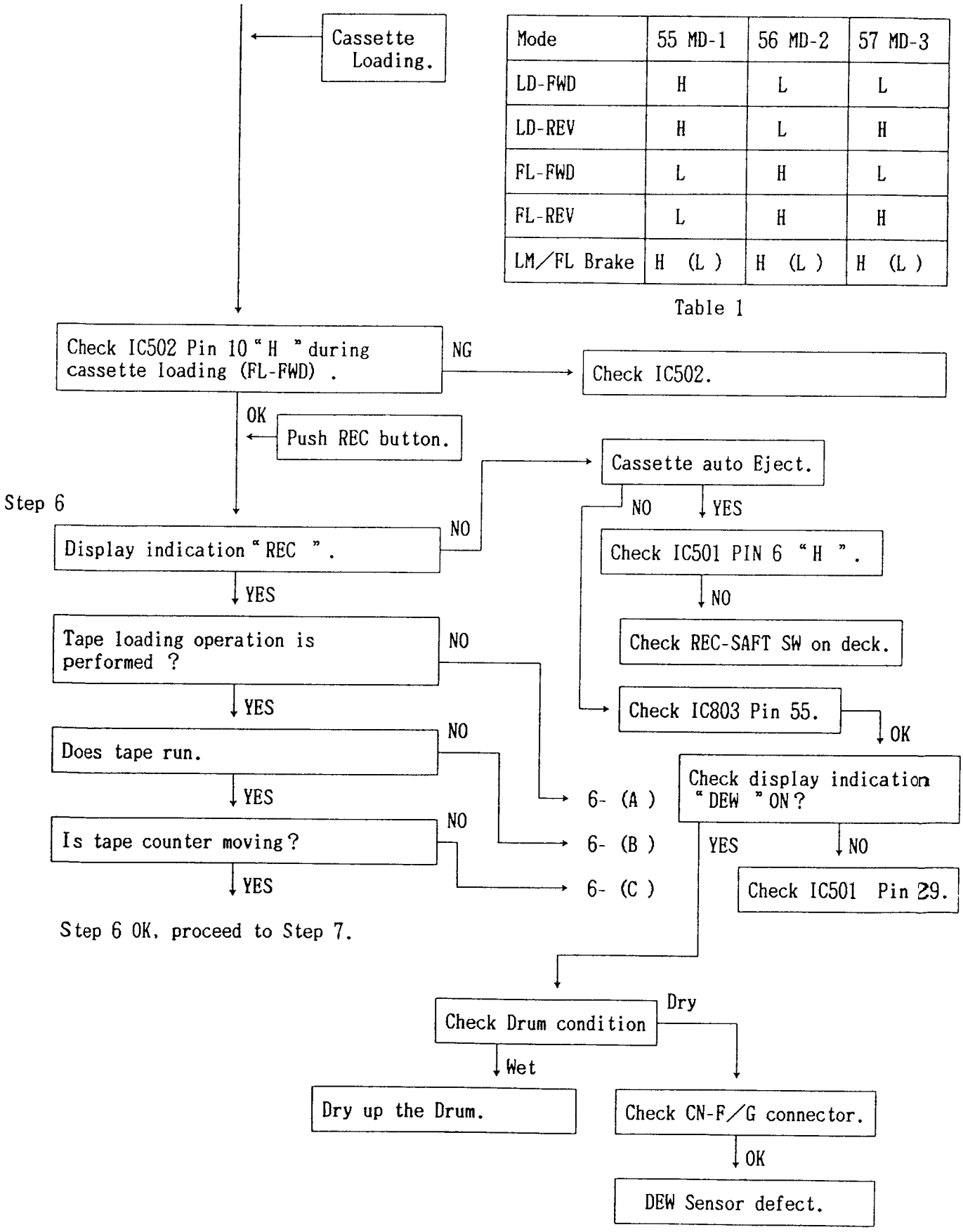

Step 1
AC power cord into power outlet.
Check display indication " -- : -- ".
NG
Check AC 5V, ALL -28V .
OK
Push power button.
Step 2
Check display indication " ■ ".
NG
Check IC803 Pins 18 and 21 is same waveform during depressing POWER button.
NG
OK
Check POWER switch CN-5.
OK
Check IC501 Pin 61 " H ".
NG
Check LD-A,B,C on IC501. (See Table 2.)
NG
OK
Check IC803 Pin 42 and 59.
IC803 defect.
OK
Check IC604,Q651 and Q652.
OK
Check Q651~Q654 and Q701.
Check LD-A,B,C switch on deck. (See Table 2.)
Step 3
Normal picture and sound of TV tuner on TV set.
NO
Cable from antenna and cable to TV set connected properly.
YES
Step 4
OK
Check channel indicator in multi function display.
NG
Check IC803 Pin 47 and 48.
Check CONV-1.
OK
OK
OK
TV set defect.
Check IC501 Pin 29, 30 and 31.
Normal picture and sound of VCR tunner on TV set.
NO
OK
Check auto tuning operation.
NG
Check IC701 Pin 6, 7.
NG
IC701 defect.
OK
OK
Check IC 704.
NG
IC704 defect.


OK
Check QR702,QR703.
OK
Check IC803 Pin34.
NG
IC803 defect.
Auto tuning is completed selected picture is OK ?
NG
Check IC803 Pin 35 of T-DAC signal
OK
OK
NG
Check selected sound.
Check DC voltage of Q701.
IC803 defect.
OK
OK
Check IC501 Pin47.
Check IC701 Pin 7.
NG
IC701 defect.
OK
OK
Check QR704.
Check IC701 Pin 10.
NG
OK
OK
Check TU701.
Check V-OUT terminal of TU701.
NG
TU701 defect.
OK
Step 4 OK,Proceed to Steo 5.
During video signal is input Pin 6 of IC703 Pin 10 of IC703 becomes "L".
OK
NG
Check IC803 Pin 30.
IC703 defect.
OK
IC803 defect.


Check voltage, IC704, IC701, QR704 QR705, IC702, and IC703.
OK
Check Conv-1 TU701 and J3 (VIDEO IN) .
OK
(VIDEO section)
Check P-ON5V line at HIC51 Pin 7+5V on the Main PCB.
OK
Video signal at HIC 51 Pins 17, and 1 OK ?
NO
YES
Check P-ON+12V line voltage on the Main PCB.
OK
Check HIC 51
Video signal at Q52 Emitter OK ?
OK
(AUDIO section)
Check P-ON+12V line on the Main PCB.
OK
Audio signal at IC201 Pin 8 OK ?
NO
YES
Check J4 and TU701.
Audio signal at IC201 Pin 16 OK ?
NO
YES
Check IC201.
CONV-1 defect

Step 5

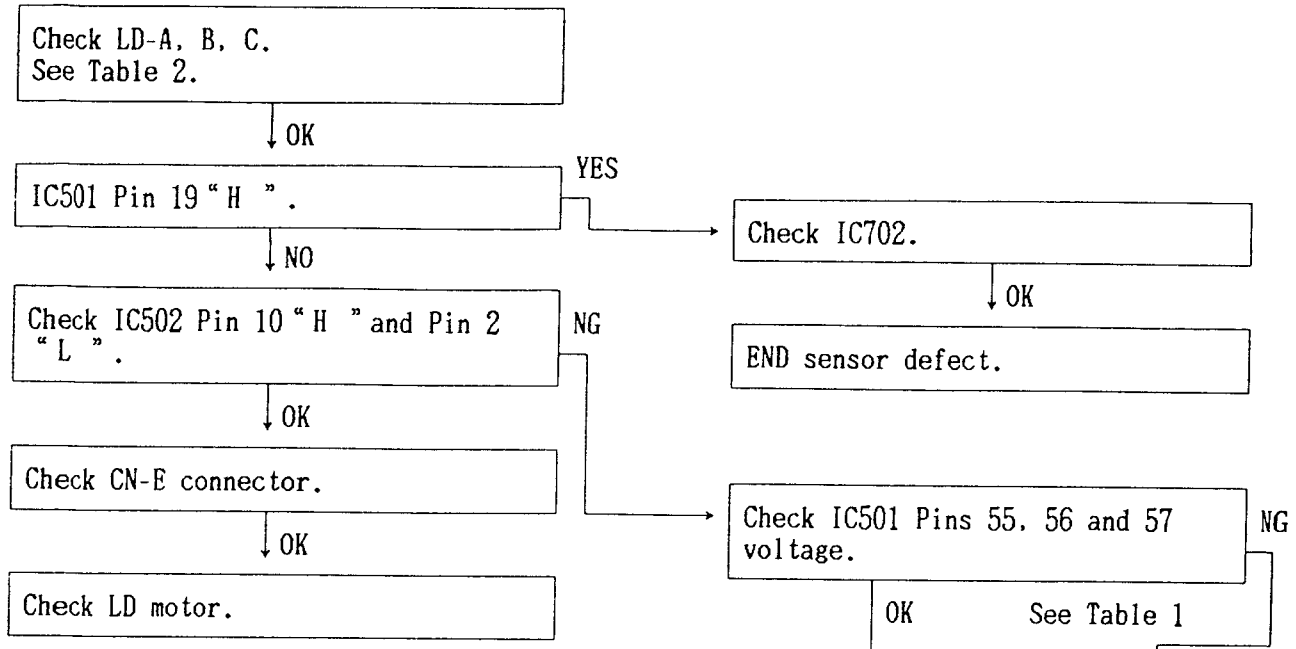

Check FL-A, B, C switch voltage on Syscon circuit.
NG
Check FL-A, B, C switch.
OK
FL-A "L" at ON CASSETTE IN detection
FL-B "L" at ON CASSETTE UP detection
FL-C "L" at ON CASSETTE DOWN detection
FL-A FL-B FL-C
H L H
Check IC501 Pins 55, 56 and 57.
NG
Check IC501.
OK



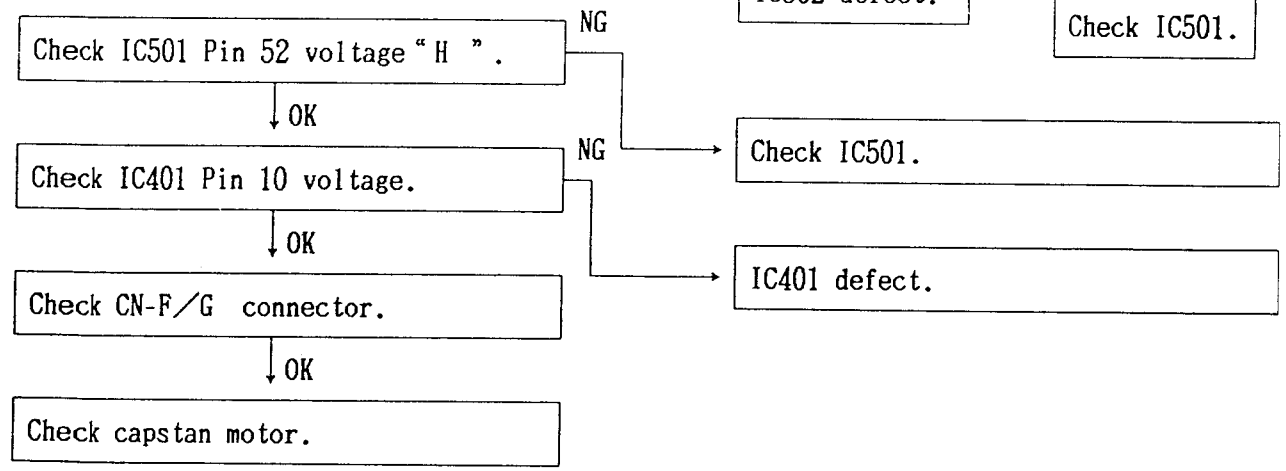
Mode	55 MD-1	56 MD-2	57 MD-3
LD-FWD	H	L	L
LD-REV	H	L	H
FL-FWD	L	H	L
FL-REV	L	H	H
LM/FL Brake	H (L)	H (L)	H (L)

Table 1

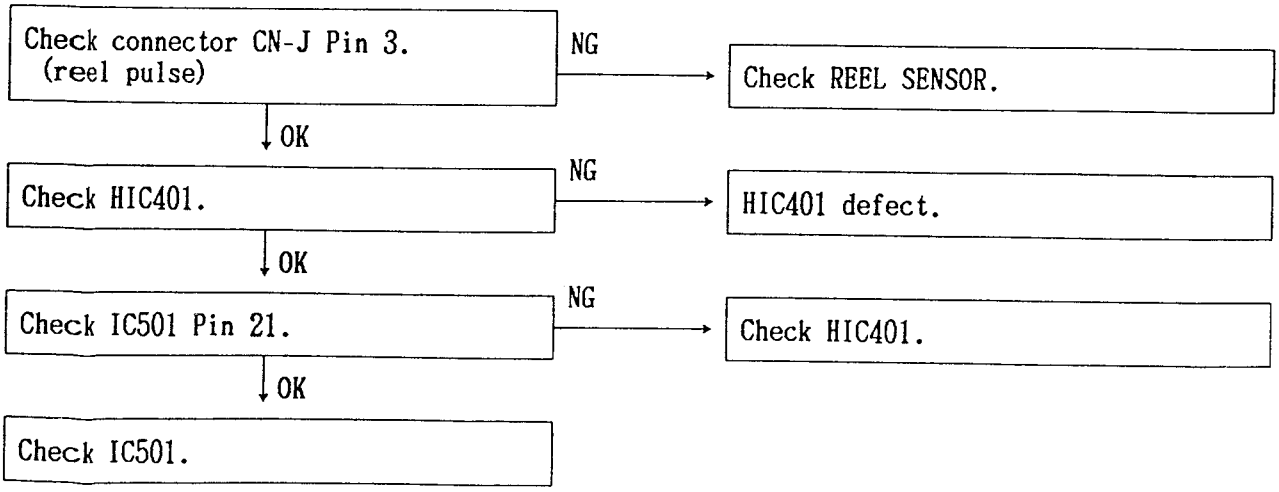
6- (A)


Check LD-A, B, C.
See Table 2.
OK
IC501 Pin 19 " H ".
YES
Check IC702.
OK
END sensor defect.
NO
Check IC502 Pin 10 " H " and Pin 2 " L ".
NG
OK
Check CN-E connector.
OK
Check LD motor.
Check IC501 Pins 55, 56 and 57 voltage.
NG
OK
See Table 1
IC502 defect.
Check IC501.

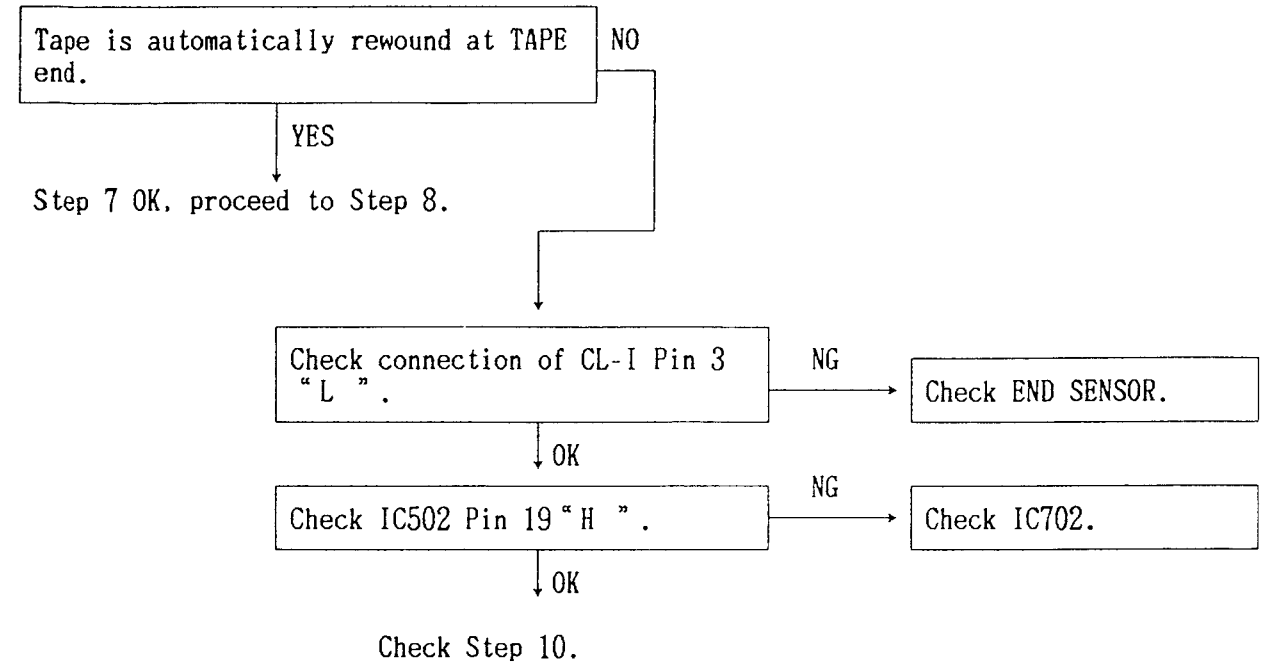
6- (B)

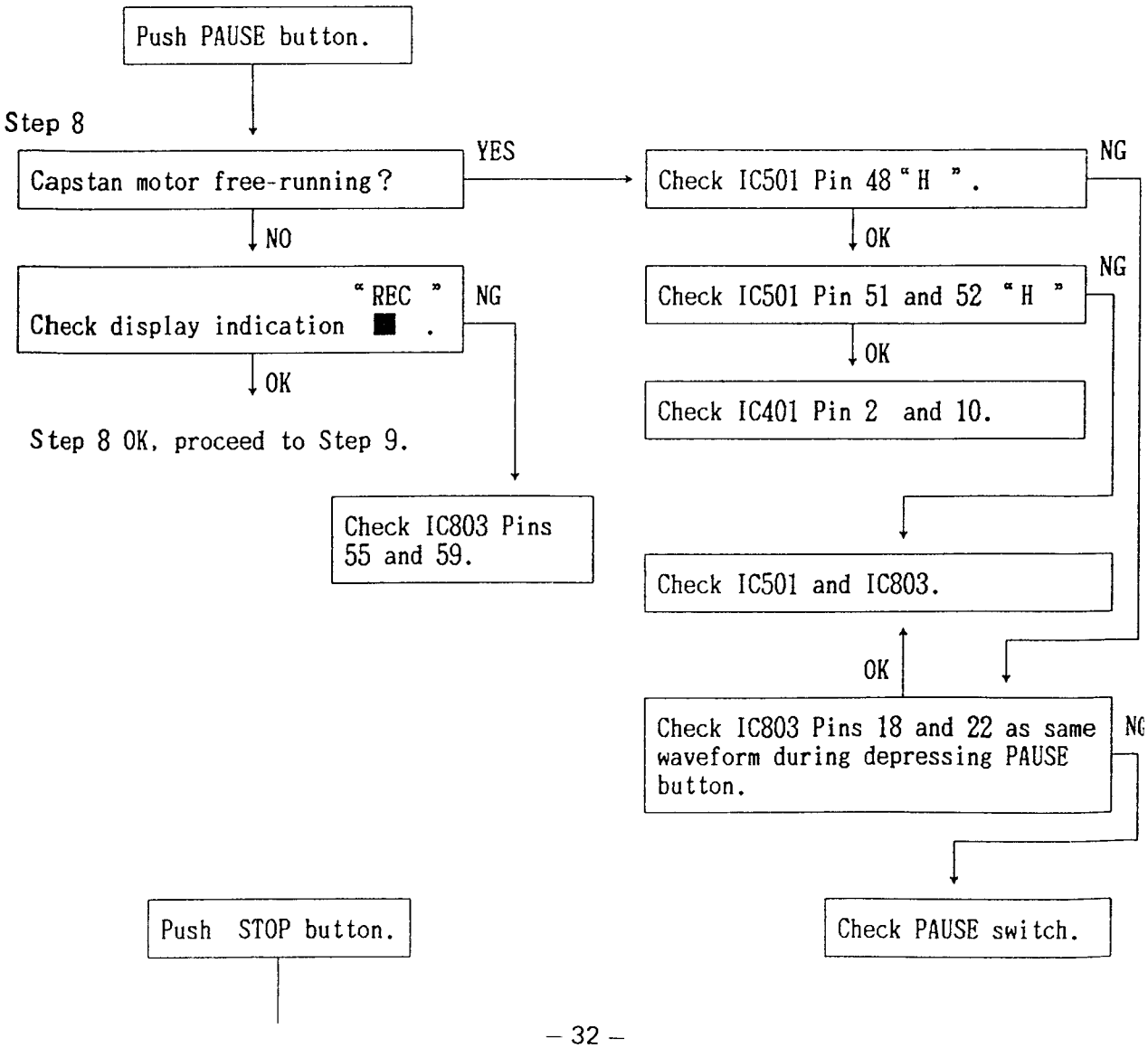

Check IC501 Pin 52 voltage " H ".
NG
OK
Check IC501.
Check IC401 Pin 10 voltage.
NG
OK
IC401 defect.
Check CN-F/G connector.
OK
Check capstan motor.

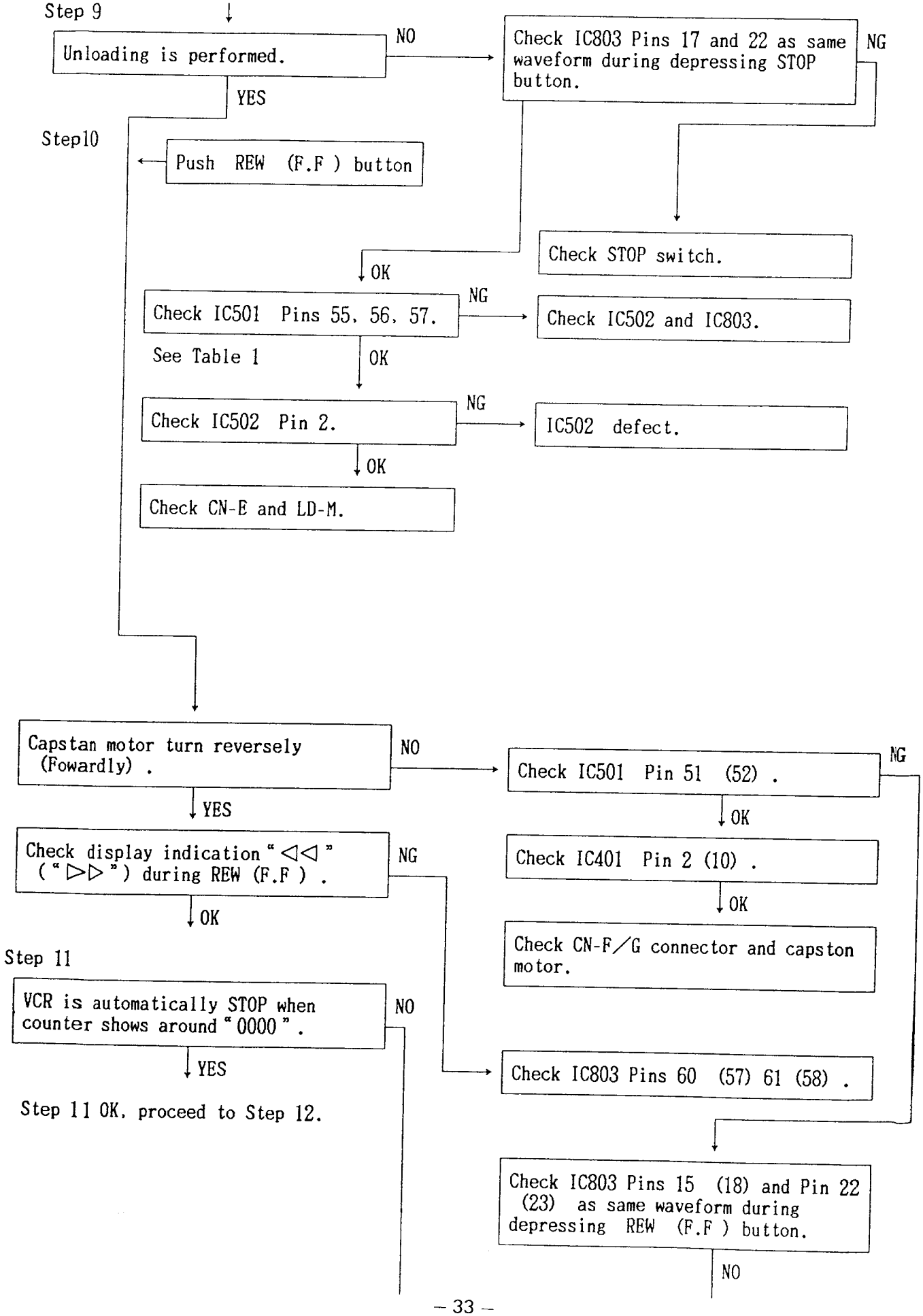
6- (C)

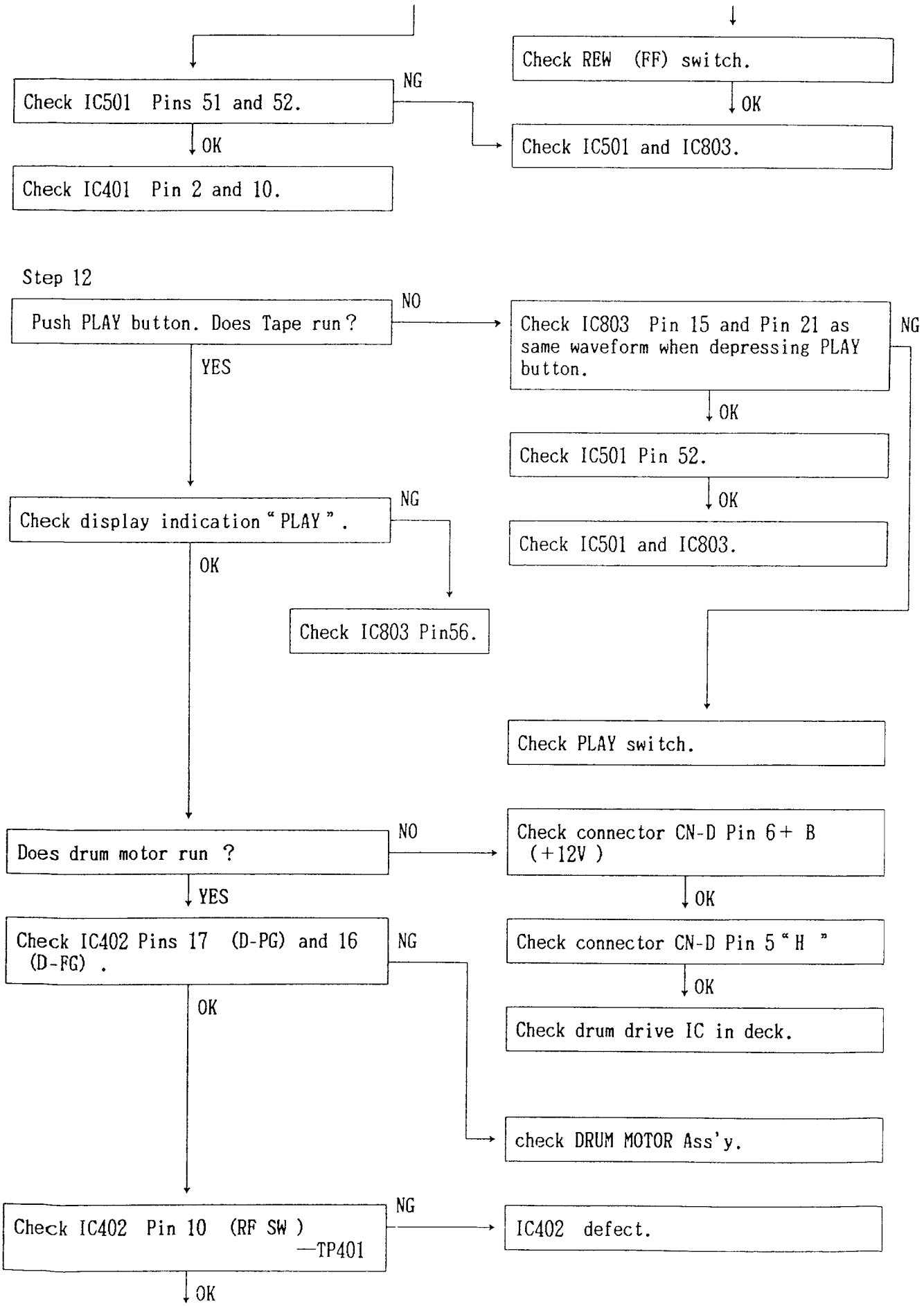

Check connector CN-J Pin 3. (reel pulse)
NG
Check REEL SENSOR.
OK
Check HIC401.
NG
HIC401 defect.
OK
Check IC501 Pin 21.
NG
Check HIC401.
OK
Check IC501.

Step 7

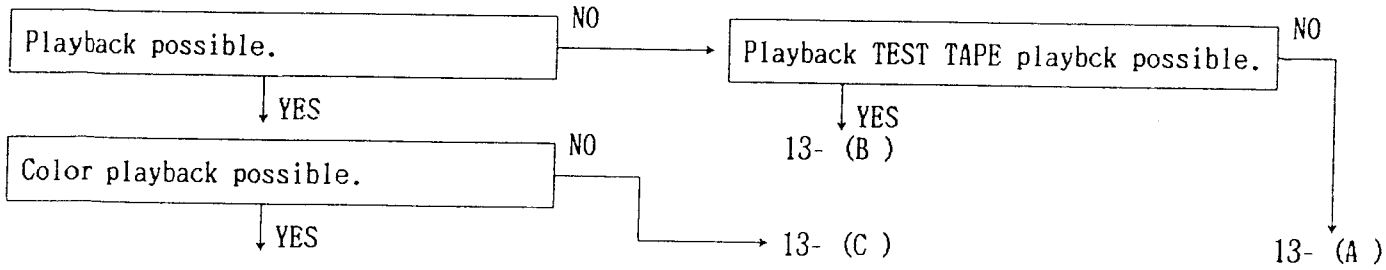

Tape is automatically rewound at TAPE end.
NO
YES
Step 7 OK, proceed to Step 8.
Check connection of CL-I Pin 3 " L ".
NG
Check END SENSOR.
OK
Check IC502 Pin 19 " H ".
NG
Check IC702.
OK
Check Step 10.


Push PAUSE button.
Step 8
Capstan motor free-running?
YES
NG
Check IC501 Pin 48 " H ".
NO
OK
" REC "
Check display indication ■ .
NG
NG
Check IC501 Pin 51 and 52 " H "
OK
OK
Check IC401 Pin 2 and 10.
Step 8 OK, proceed to Step 9.
Check IC803 Pins 55 and 59.
Check IC501 and IC803.
OK
Check IC803 Pins 18 and 22 as same waveform during depressing PAUSE button.
NG
Push STOP button.
Check PAUSE switch.


Step 9
Unloading is performed.
NO
Check IC803 Pins 17 and 22 as same waveform during depressing STOP button.
NG
YES
Step10
Push REW (F.F) button
Check STOP switch.
OK
Check IC501 Pins 55, 56, 57.
NG
Check IC502 and IC803.
See Table 1
OK
Check IC502 Pin 2.
NG
IC502 defect.
OK
Check CN-E and LD-M.
Capstan motor turn reversely (Fowardly) .
NO
Check IC501 Pin 51 (52) .
NG
YES
OK
Check display indication " ◁◁ " (" ▷▷ ") during REW (F.F) .
NG
Check IC401 Pin 2 (10) .
OK
OK
Check CN-F/G connector and capston motor.
Step 11
VCR is automatically STOP when counter shows around " 0000 " .
NO
Check IC803 Pins 60 (57) 61 (58) .
YES
Step 11 OK, proceed to Step 12.
Check IC803 Pins 15 (18) and Pin 22 (23) as same waveform during depressing REW (F.F) button.
NO

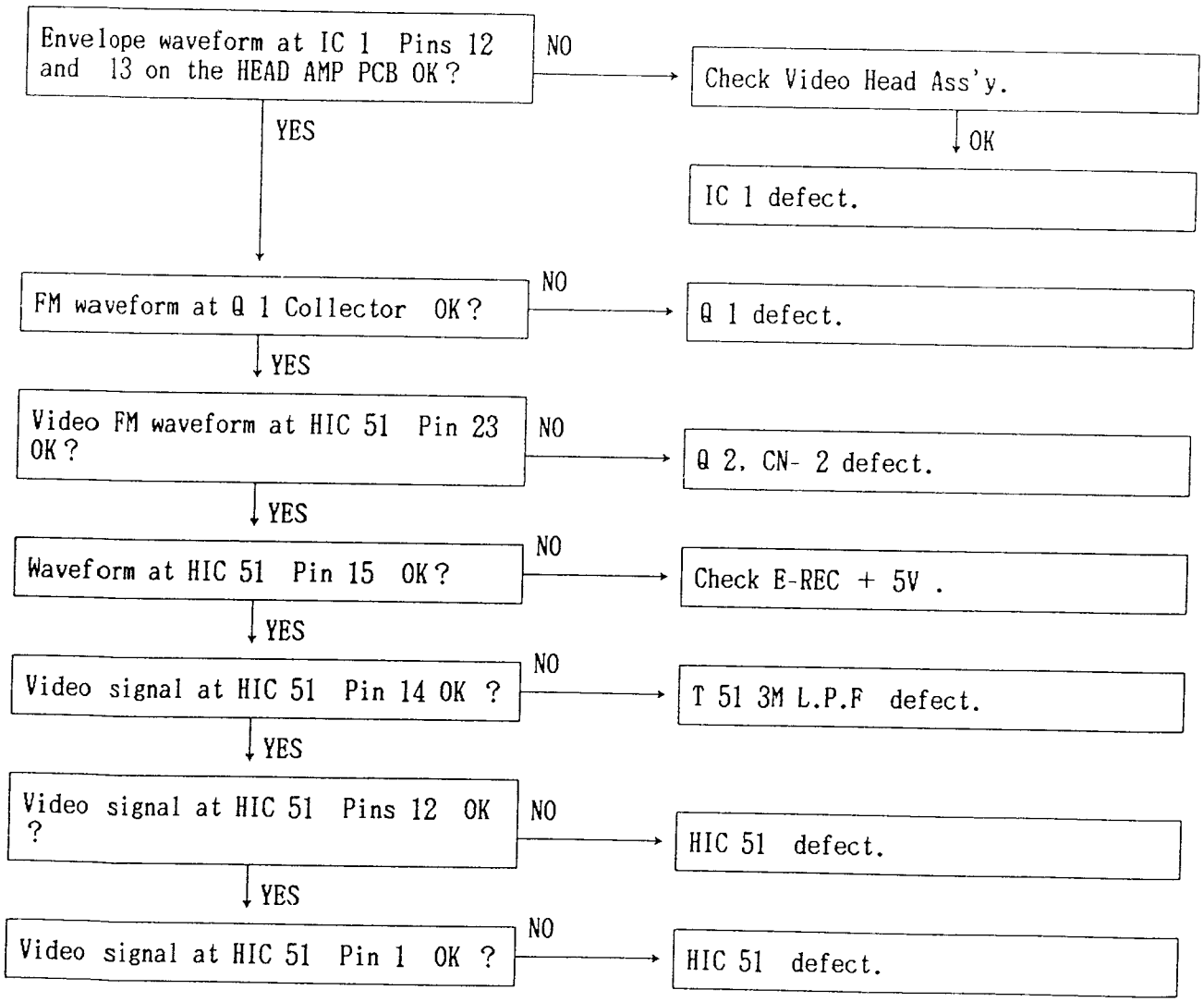

Check REW (FF) switch.
OK
Check IC501 Pins 51 and 52.
NG
Check IC501 and IC803.
OK
Check IC401 Pin 2 and 10.
Step 12
Push PLAY button. Does Tape run?
NO
Check IC803 Pin 15 and Pin 21 as same waveform when depressing PLAY button.
NG
OK
Check IC501 Pin 52.
OK
Check IC501 and IC803.
YES
Check display indication "PLAY".
NG
OK
Check IC803 Pin56.
Check PLAY switch.
Does drum motor run ?
NO
Check connector CN-D Pin 6+ B (+12V)
YES
OK
Check IC402 Pins 17 (D-PG) and 16 (D-FG).
NG
Check connector CN-D Pin 5 "H"
OK
OK
Check drum drive IC in deck.
check DRUM MOTOR Ass'y.
Check IC402 Pin 10 (RF SW) —TP401
NG
IC402 defect.
OK
Step 12 OK, proceed to Step 13.

Step 13

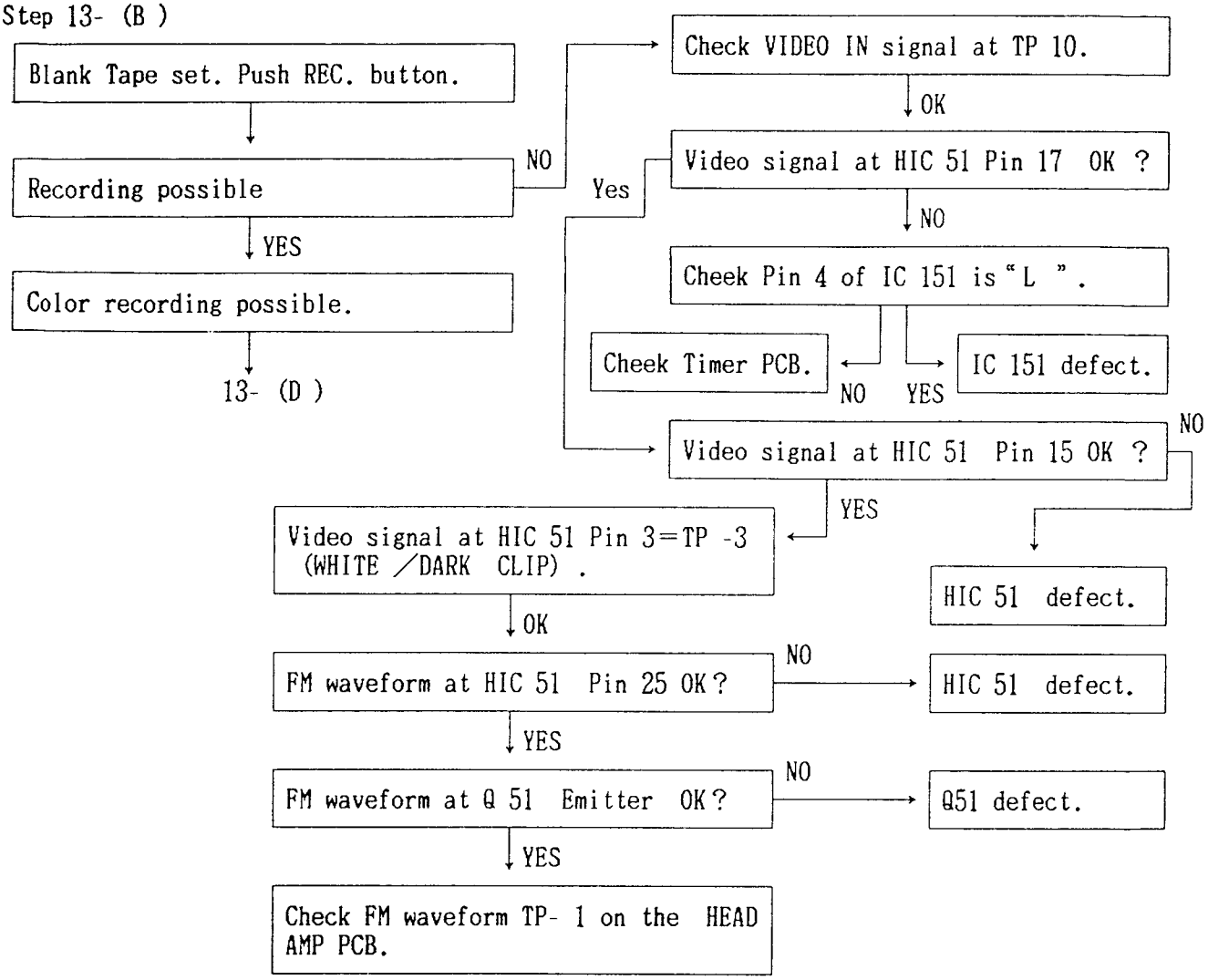


Step 13 OK, proceed to Step 14.

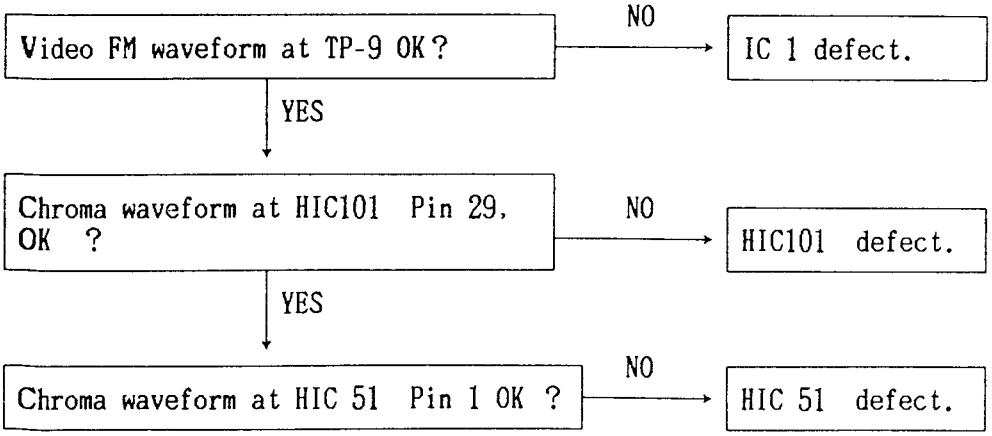
13- (A)



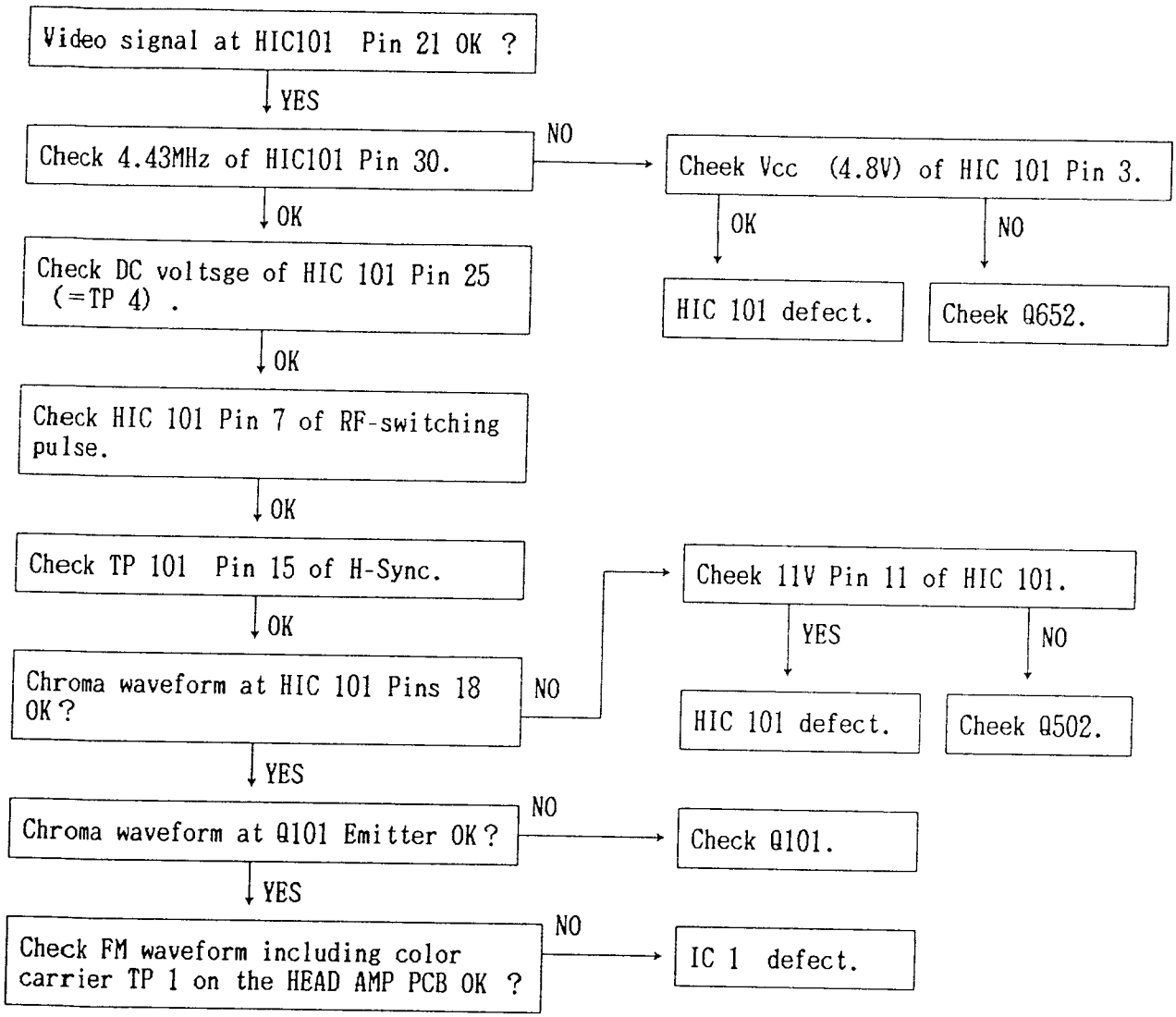
Step 13- (B)


Blank Tape set. Push REC. button.
Recording possible
NO
YES
Color recording possible.
13- (D)
Check VIDEO IN signal at TP 10.
OK
Video signal at HIC 51 Pin 17 OK ?
Yes
NO
Cheek Pin 4 of IC 151 is " L ".
Cheek Timer PCB.
NO
YES
IC 151 defect.
Video signal at HIC 51 Pin 15 OK ?
NO
YES
HIC 51 defect.
Video signal at HIC 51 Pin 3=TP -3 (WHITE /DARK CLIP) .
OK
FM waveform at HIC 51 Pin 25 OK?
NO
HIC 51 defect.
YES
FM waveform at Q 51 Emitter OK?
NO
Q51 defect.
YES
Check FM waveform TP- 1 on the HEAD AMP PCB.

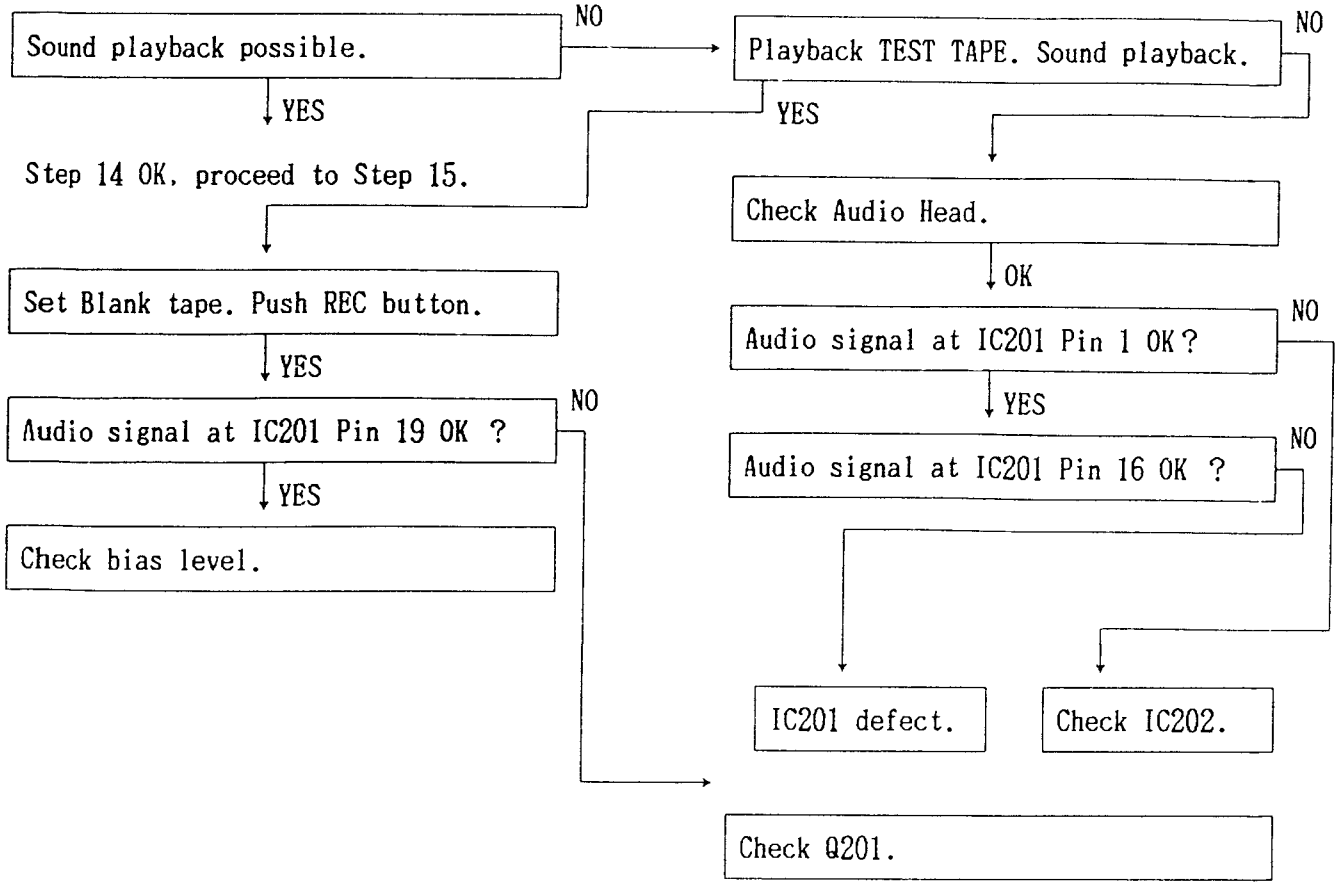
13- (C)


Video FM waveform at TP-9 OK?
NO
IC 1 defect.
YES
Chroma waveform at HIC101 Pin 29, OK ?
NO
HIC101 defect.
YES
Chroma waveform at HIC 51 Pin 1 OK ?
NO
HIC 51 defect.

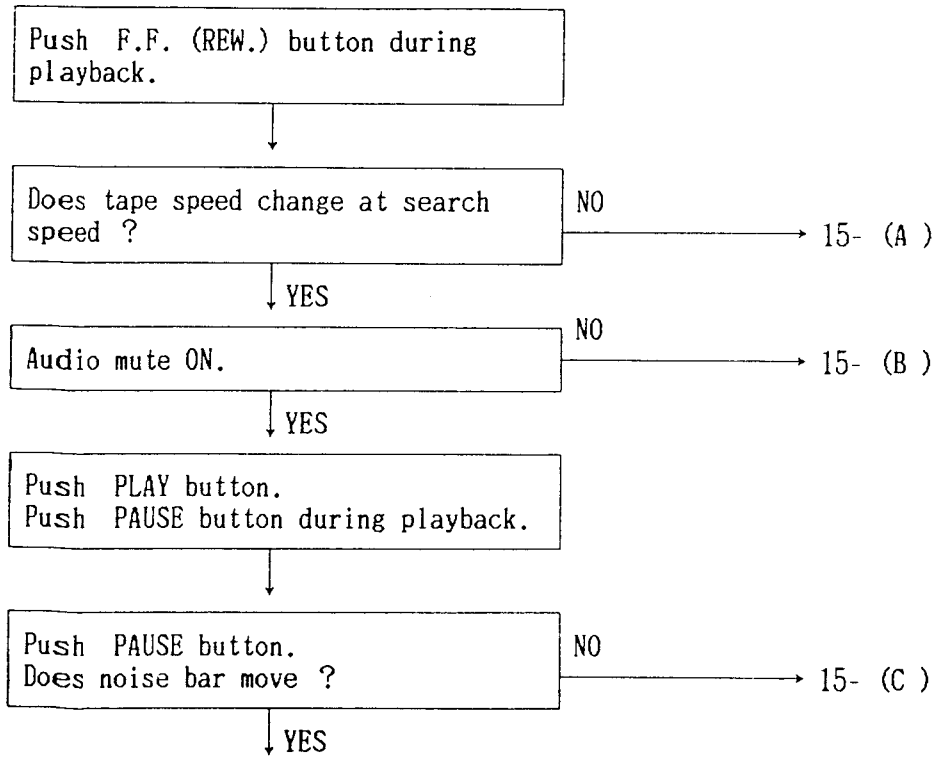
13- (D)


Video signal at HIC101 Pin 21 OK ?
YES
Check 4.43MHz of HIC101 Pin 30.
NO
Cheek Vcc (4.8V) of HIC 101 Pin 3.
OK
NO
HIC 101 defect.
Cheek Q652.
OK
Check DC voltsge of HIC 101 Pin 25 (=TP 4) .
OK
Check HIC 101 Pin 7 of RF-switching pulse.
OK
Check TP 101 Pin 15 of H-Sync.
OK
Chroma waveform at HIC 101 Pins 18 OK?
NO
Cheek 11V Pin 11 of HIC 101.
YES
NO
HIC 101 defect.
Cheek Q502.
YES
Chroma waveform at Q101 Emitter OK?
NO
Check Q101.
YES
Check FM waveform including color carrier TP 1 on the HEAD AMP PCB OK ?
NO
IC 1 defect.

Step 14

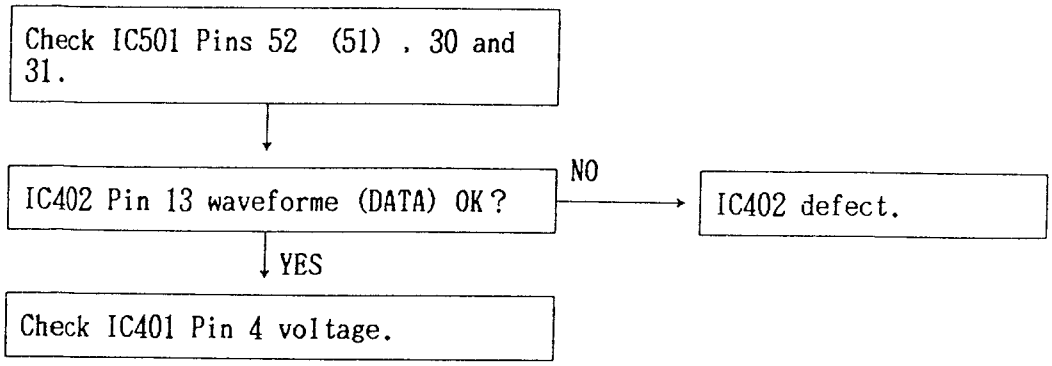


Step 15

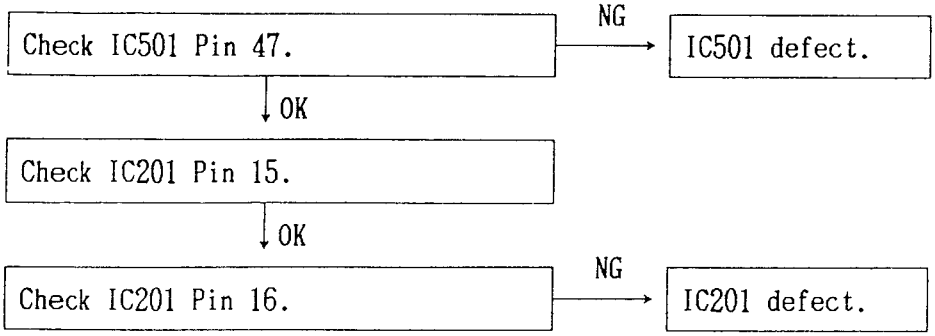


Step 15 OK, proceed to step 16.

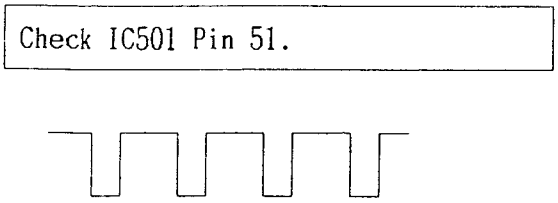
15- (A)


Check IC501 Pins 52 (51) , 30 and 31.
IC402 Pin 13 waveforme (DATA) OK?
NO
IC402 defect.
YES
Check IC401 Pin 4 voltage.

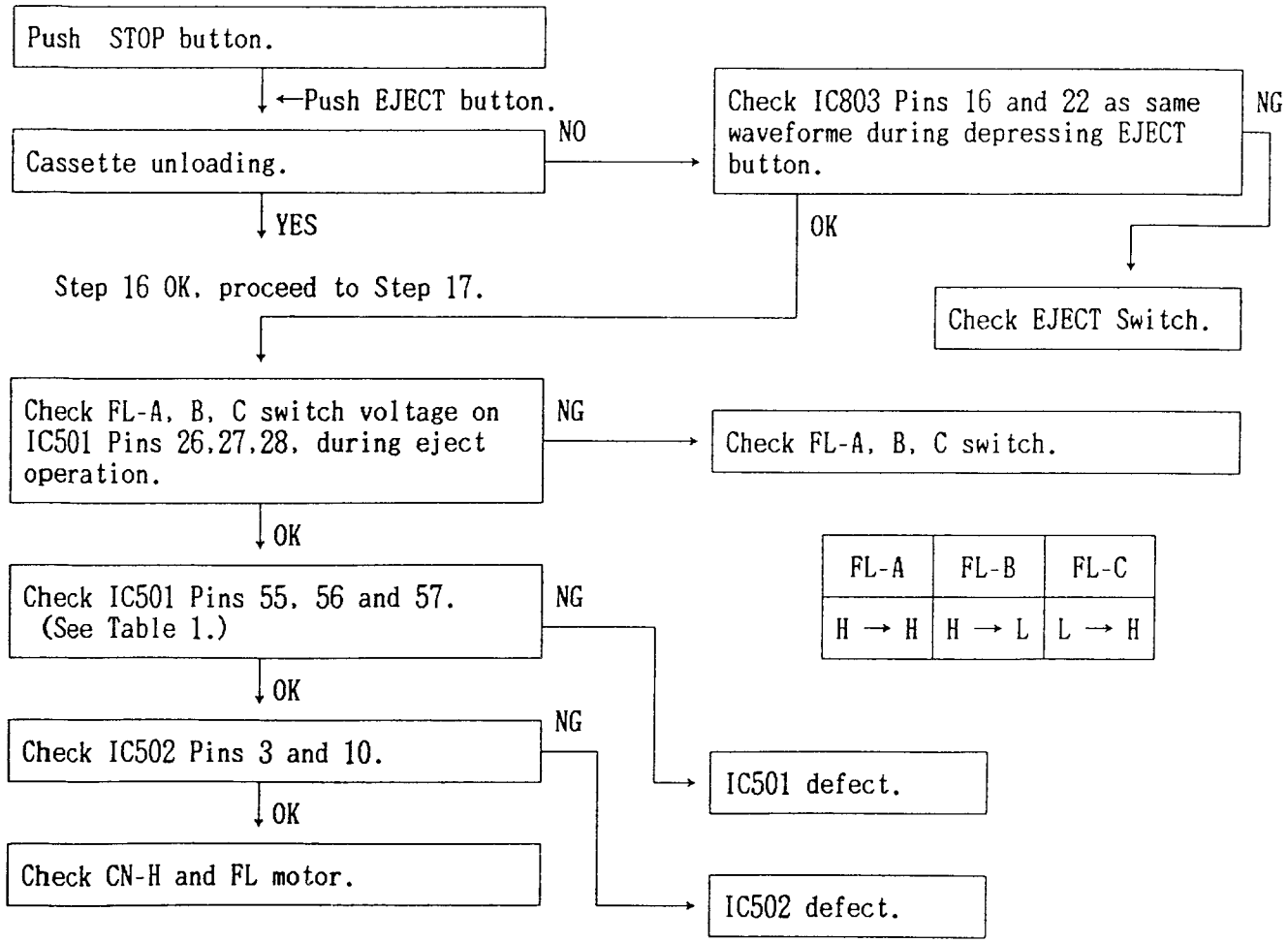
15- (B)


Check IC501 Pin 47.
NG
IC501 defect.
OK
Check IC201 Pin 15.
OK
Check IC201 Pin 16.
NG
IC201 defect.

15- (C)

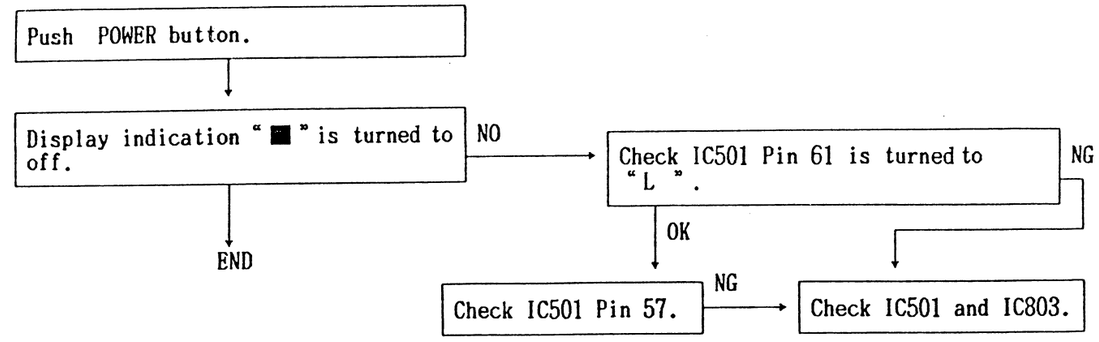

Check IC501 Pin 51.

Step 16

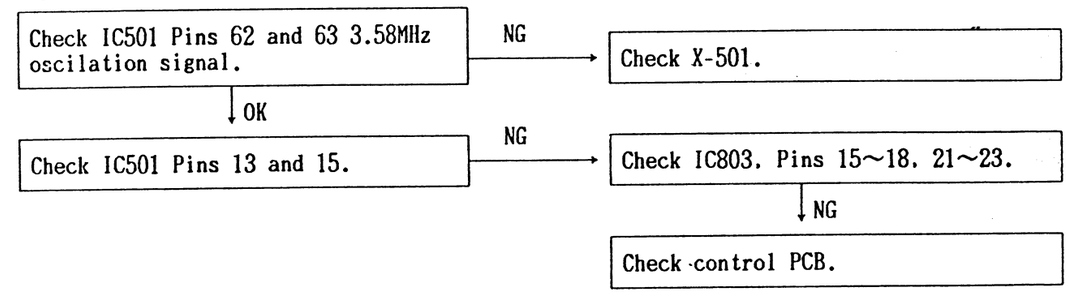


FL-A	FL-B	FL-C
H → H	H → L	L → H

Step 17



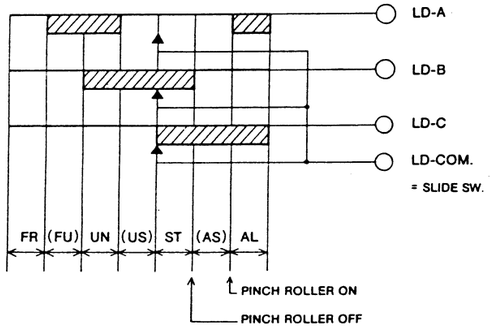
Step 18



Step19

* When SYSTEM CONTROL IC has run away SYSTEM CONTROL IC will not accept any mode. At this time, AC CORD must disconnect to reset the SYSTEM CONTROL IC.

Position of loading switch



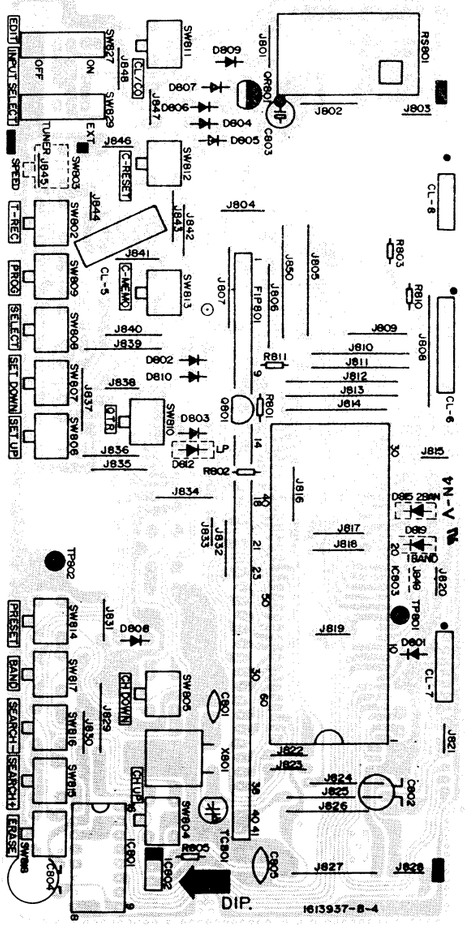
LD SW			Symbol	Position
A	B	C		
I	I	I	FR (FR LOADING)	FF. REW
O	I	I	(FU)	
O	O	I	UN (UN-LOADING)	STOP EJECT
I	O	I	(US)	
I	O	O	ST (SHORT STOP)	Loading motor is stopped temporarily at unloading.
I	I	O	(AS)	
O	I	O	AL (AFTER-LOADING)	PLAY RECPAUSE SHORT REW

O:MAKE I:BREAK
Break means intermediate position.

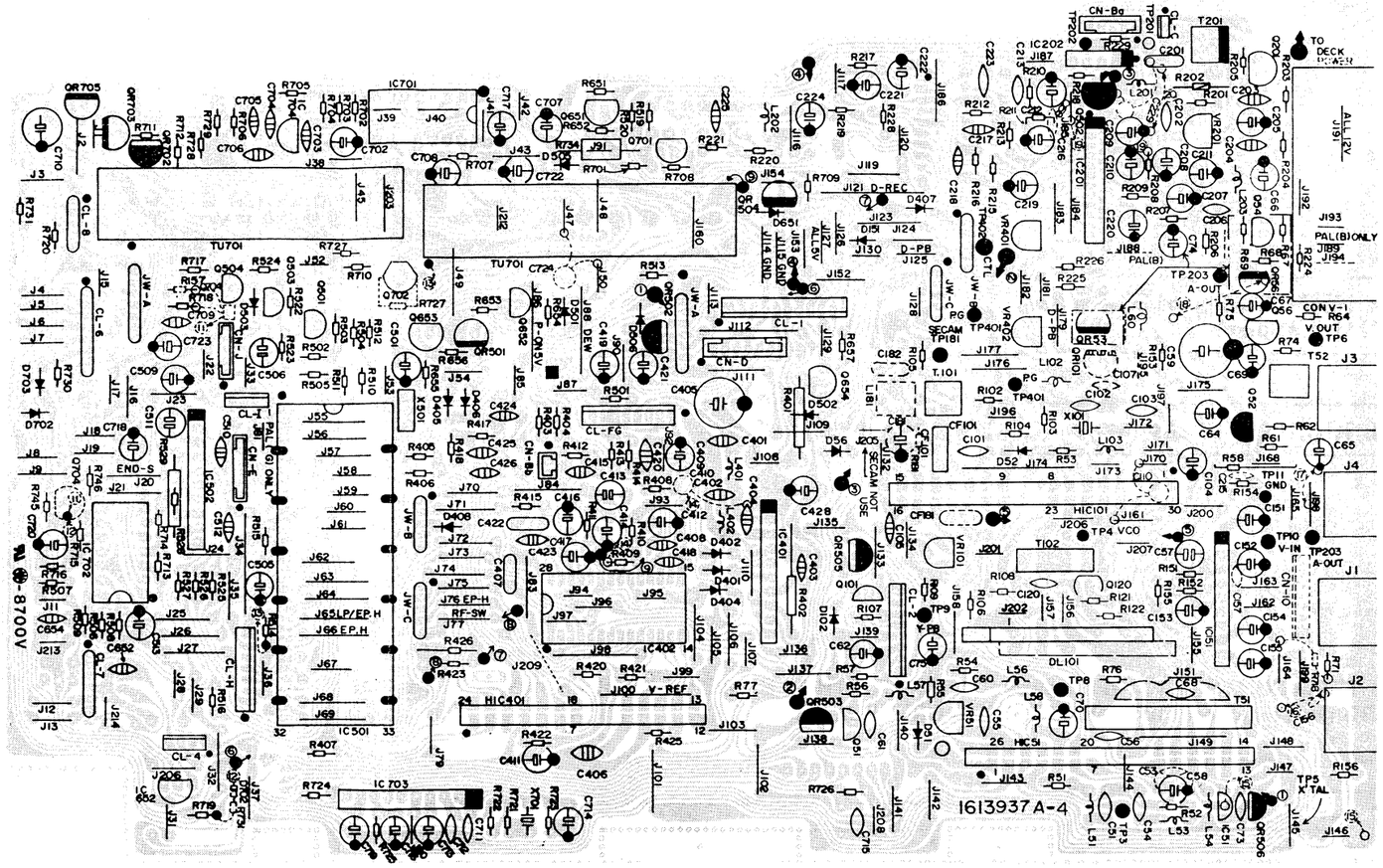
Table 2.

P.C.BOARD TOP AND BOTTOM VIEWS

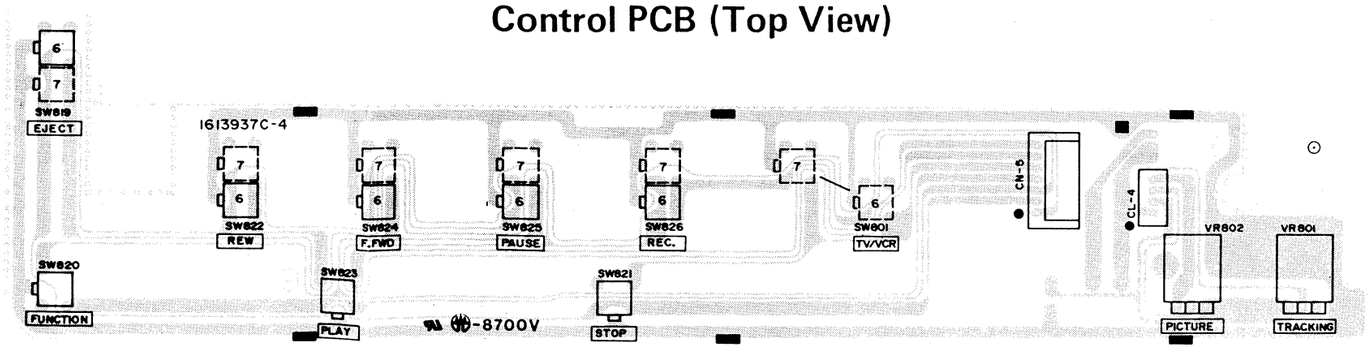
Timer PCB (Top View)



Main PCB (Top View)

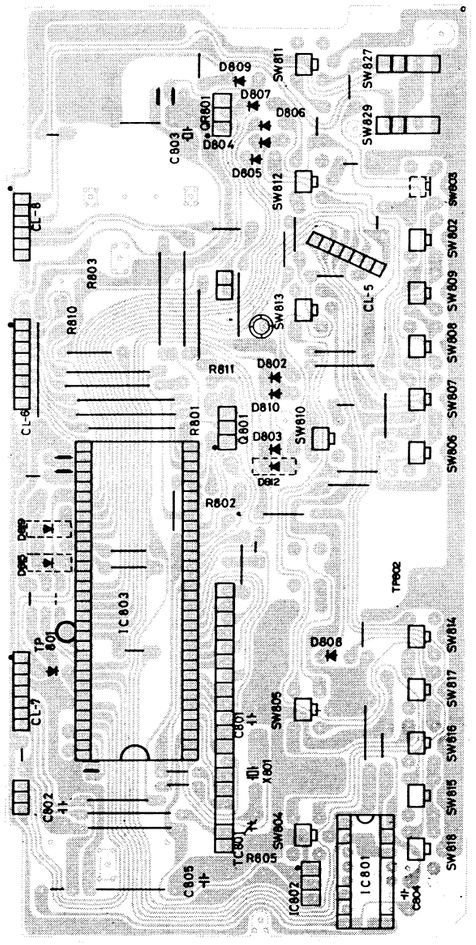


Control PCB (Top View)

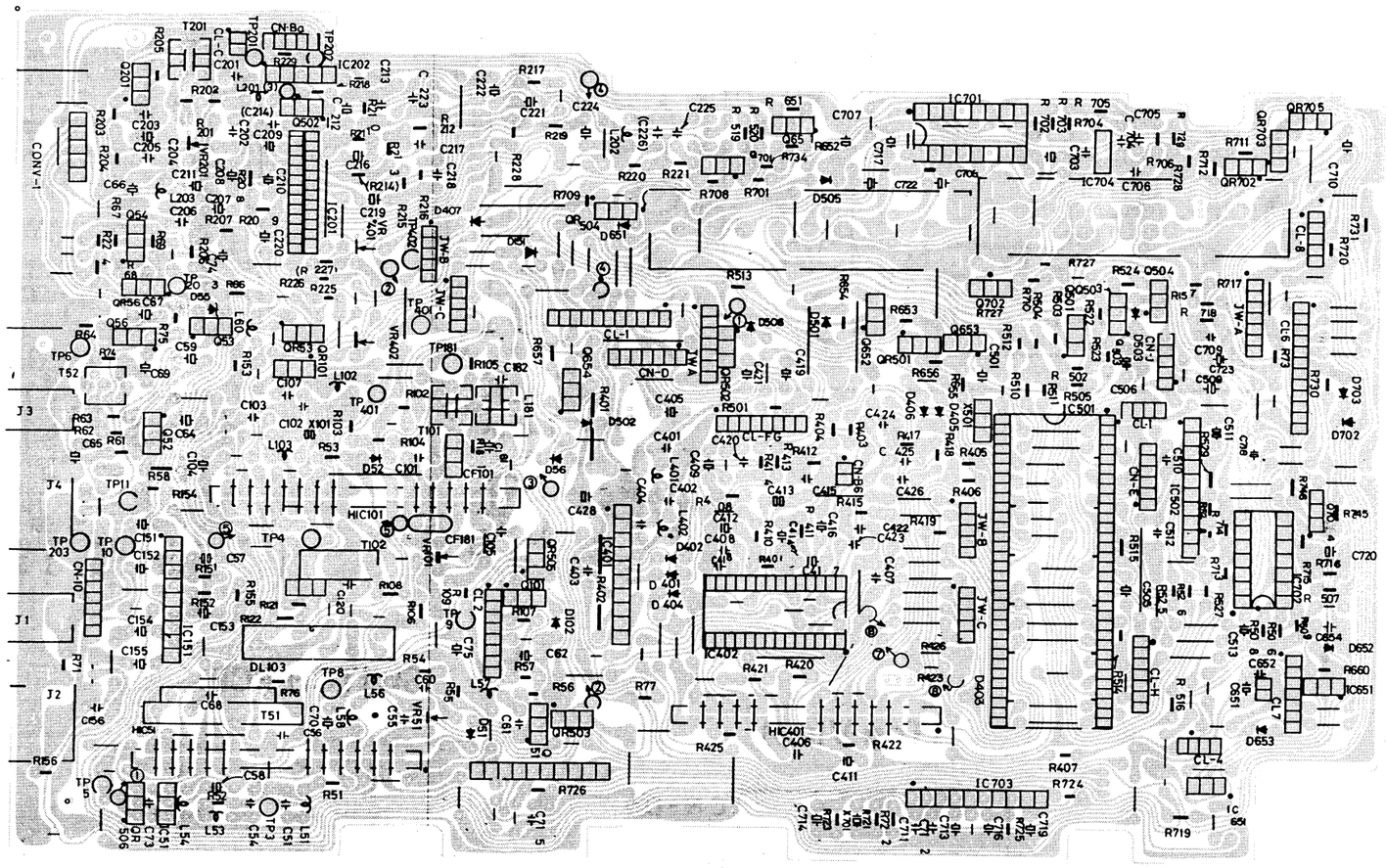


937A

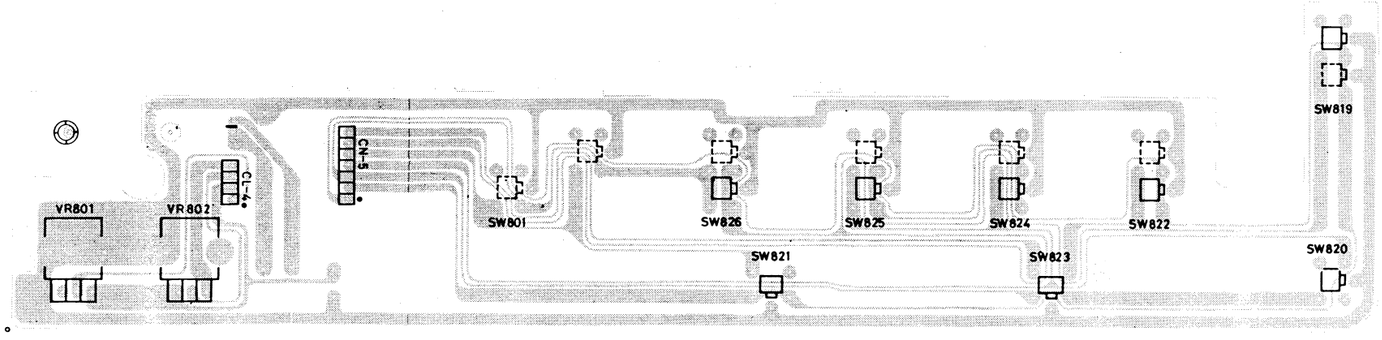
TIMER PCB (BOTTOM VIEW)



MAIN PCB (BOTTOM VIEW)

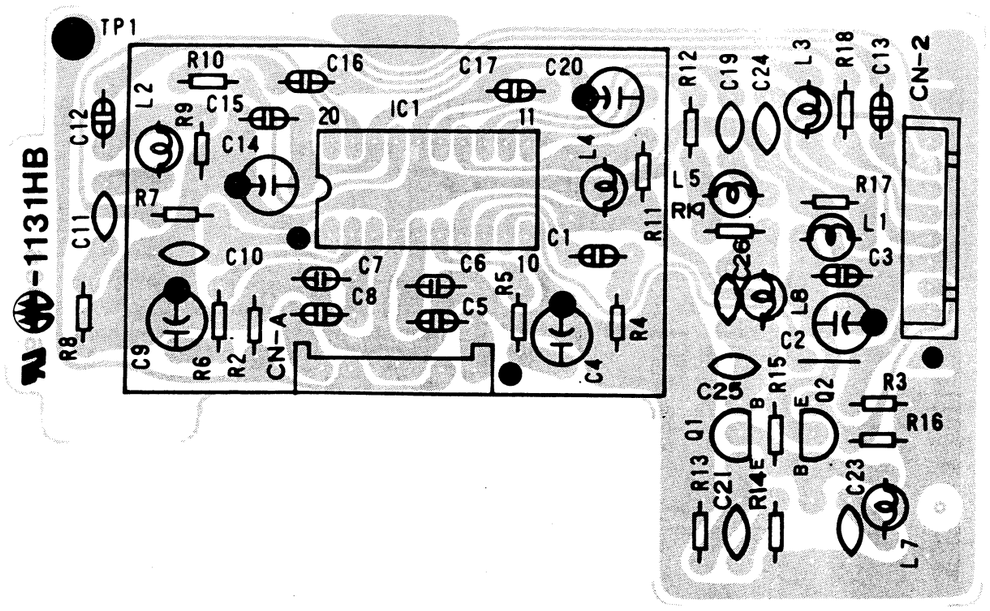


CONTROL PCB (BOTTOM VIEW)

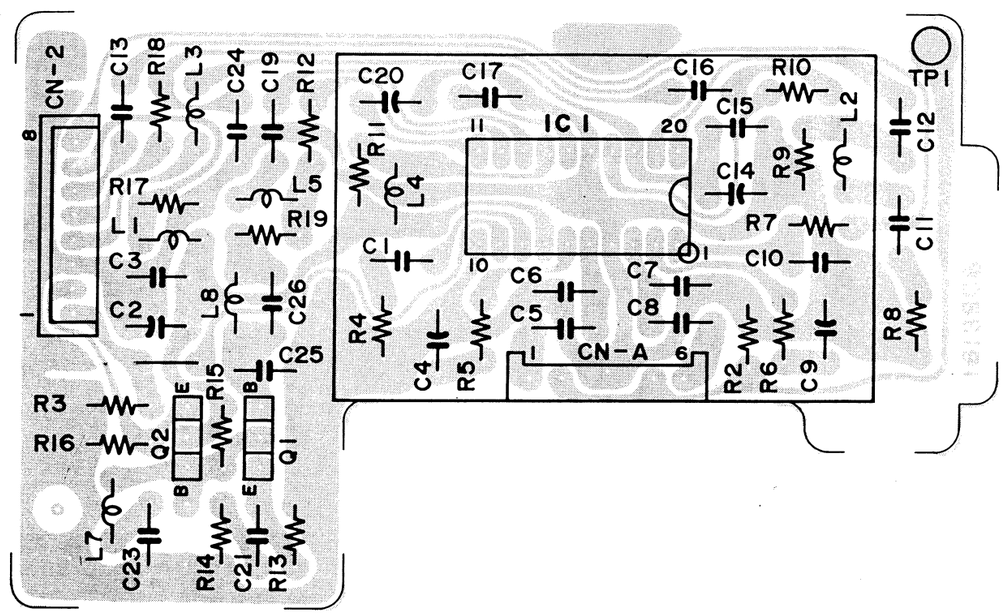


HEADAMP PCB

(Top View)

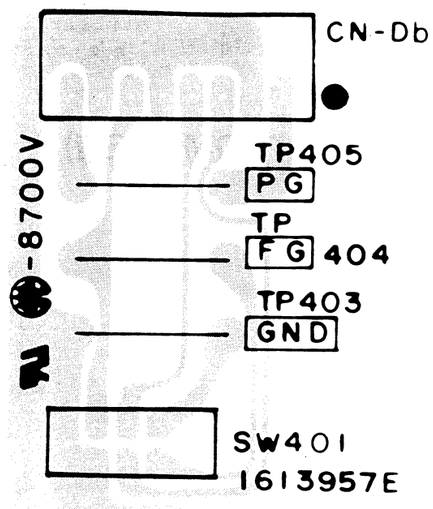


(Bottom View)

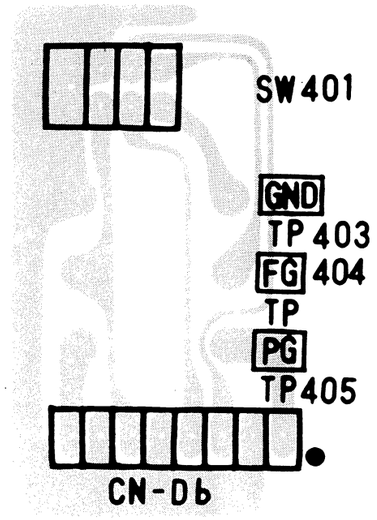


SWITCH PCB

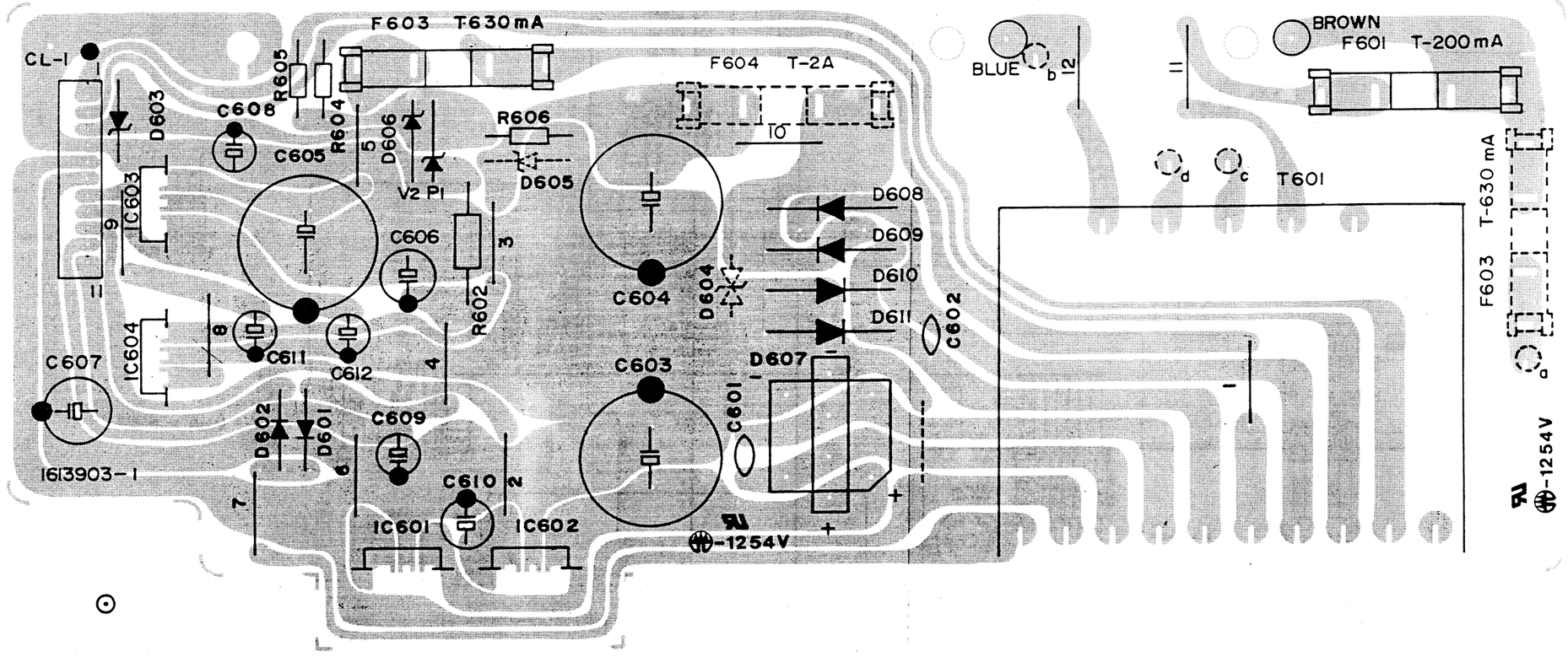
(Top View)



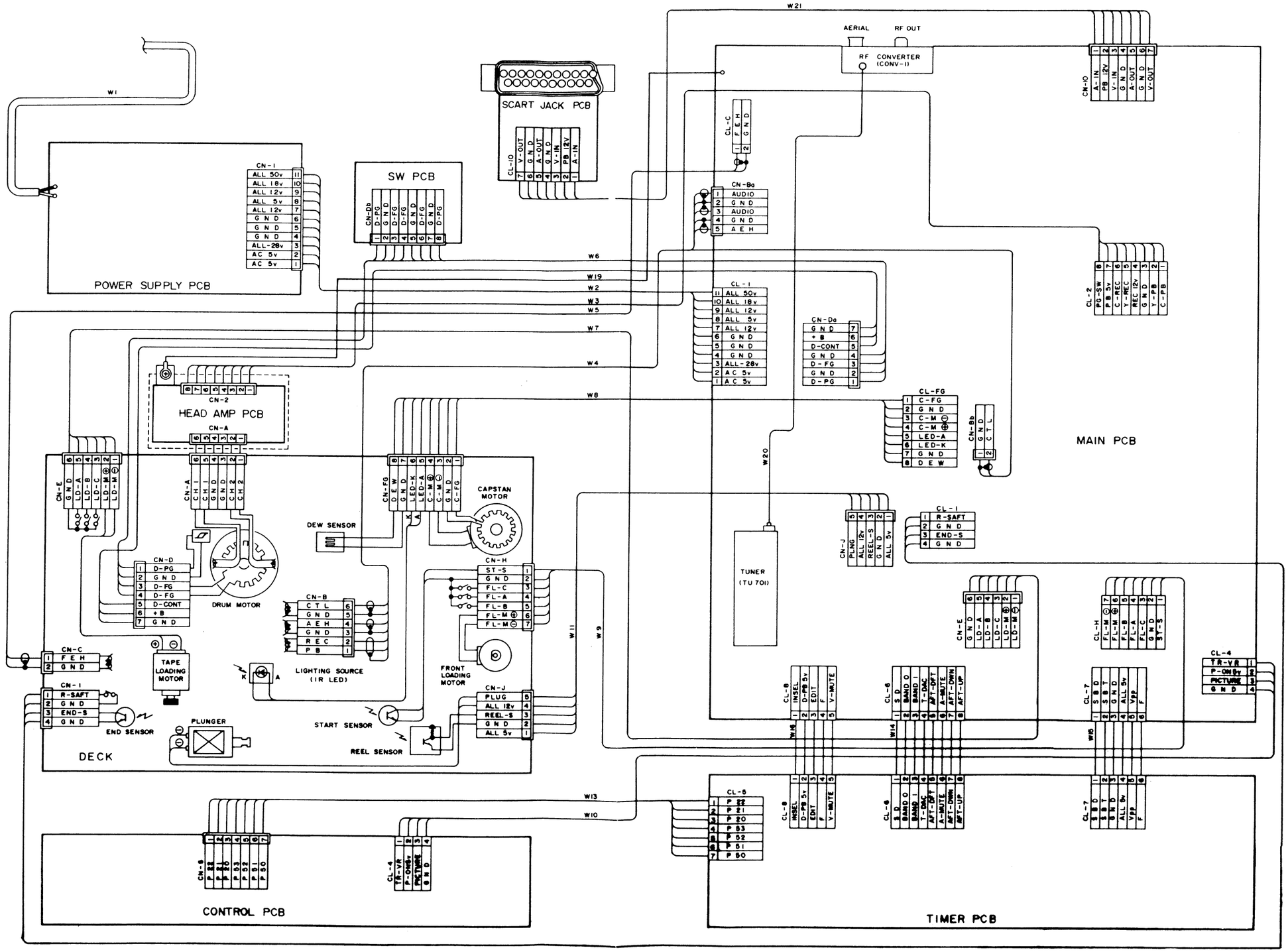
(Bottom View)



POWER SUPPLY PCB (TOP VIEW)

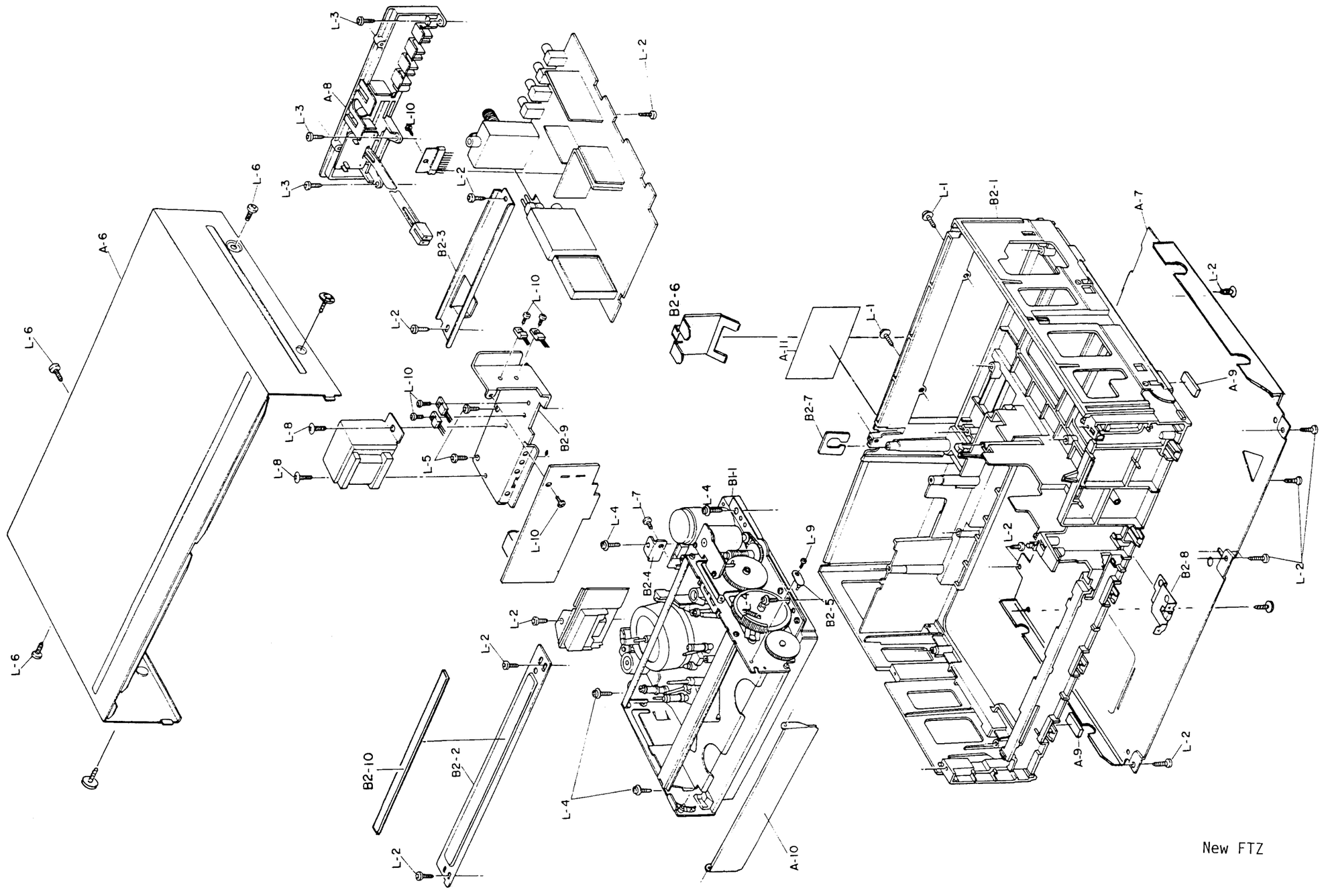


WIRING DIAGRAM

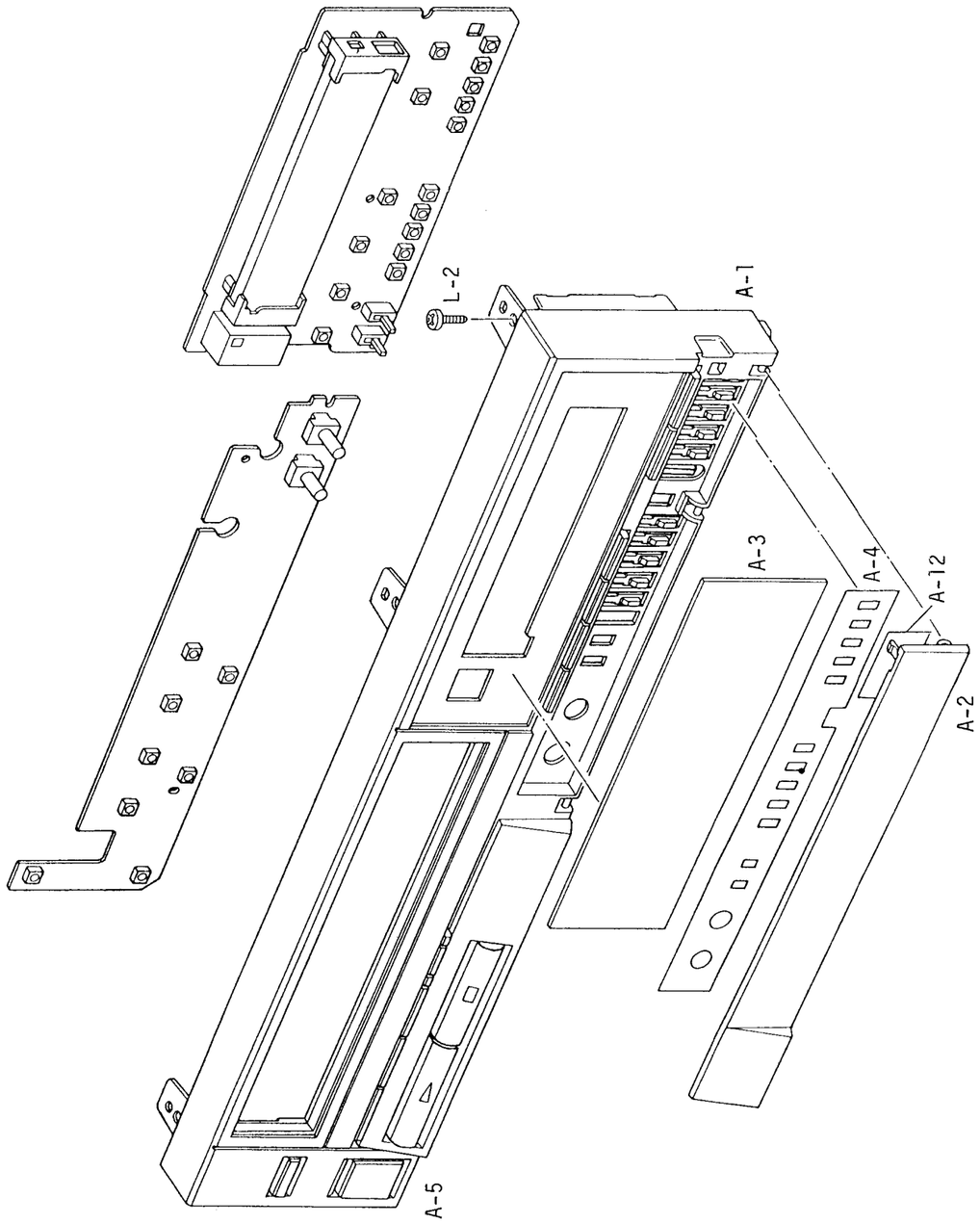


W-5

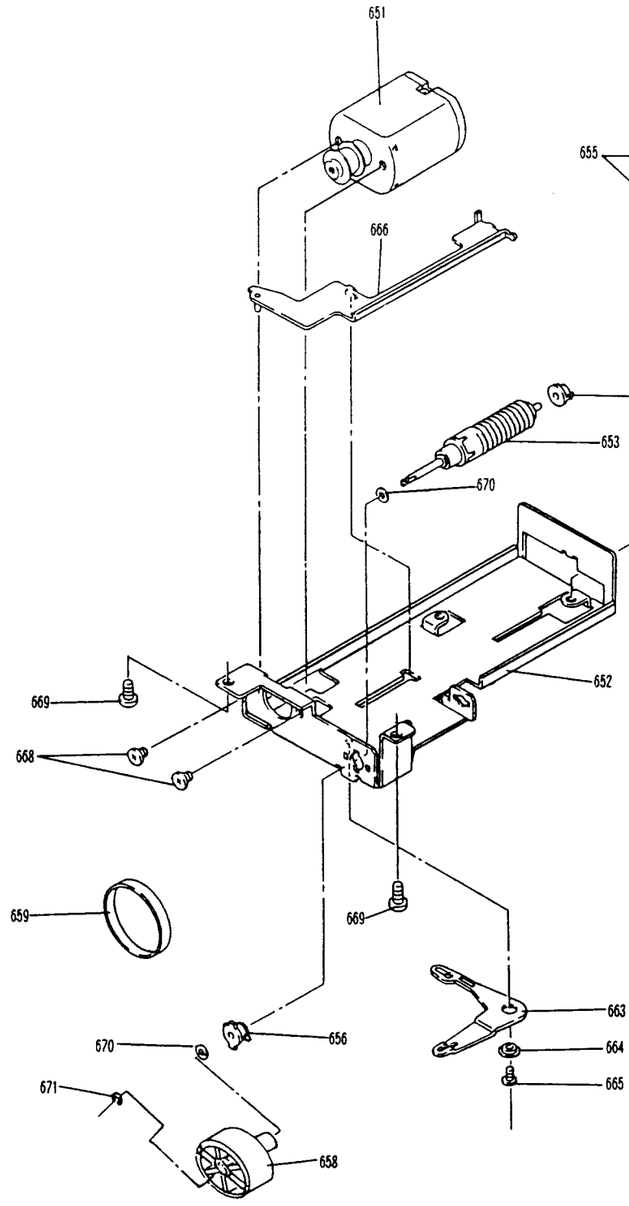
EXPLODED VIEW (CABINET 1)



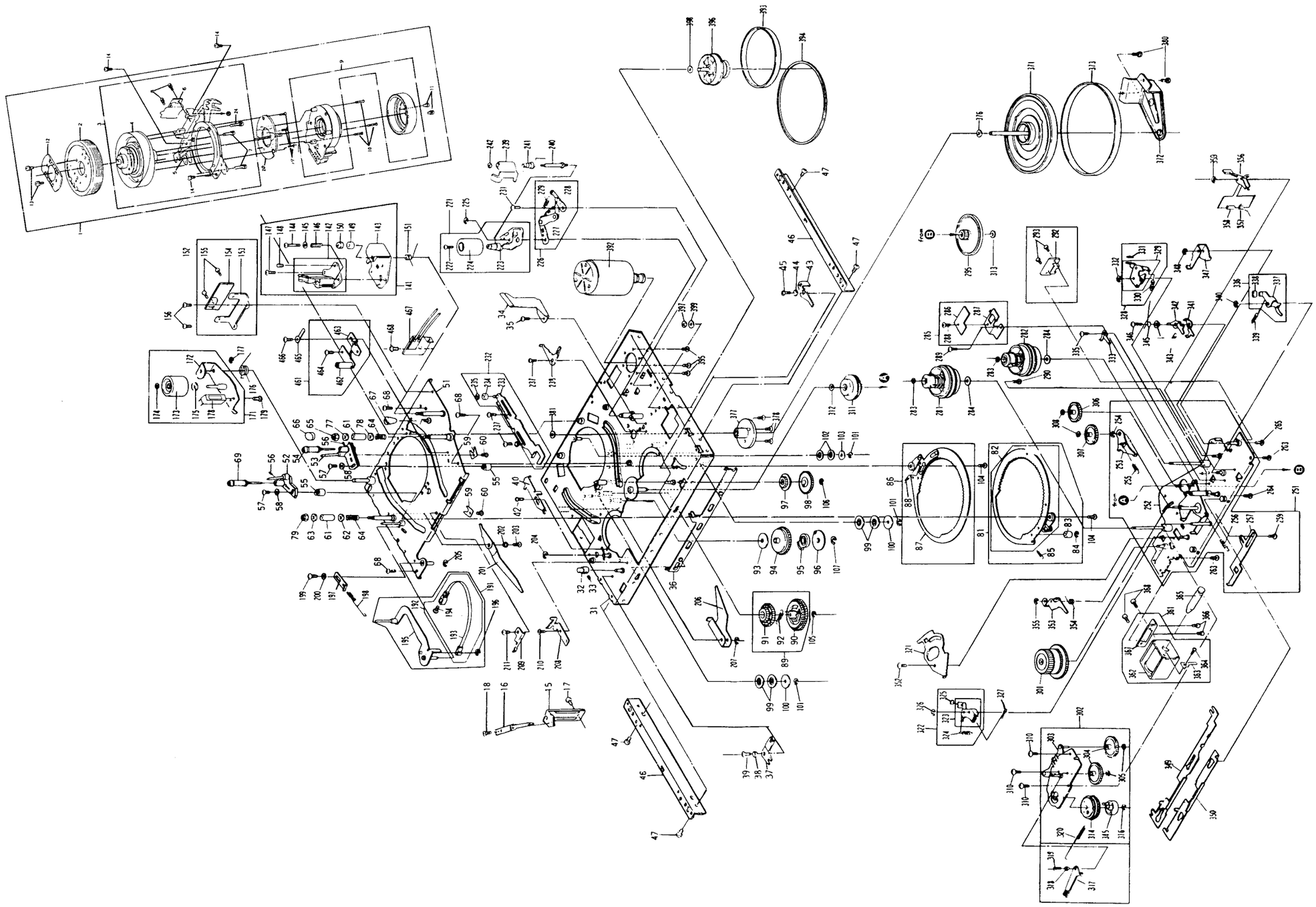
EXPLODED VIEW (CABINET 2)



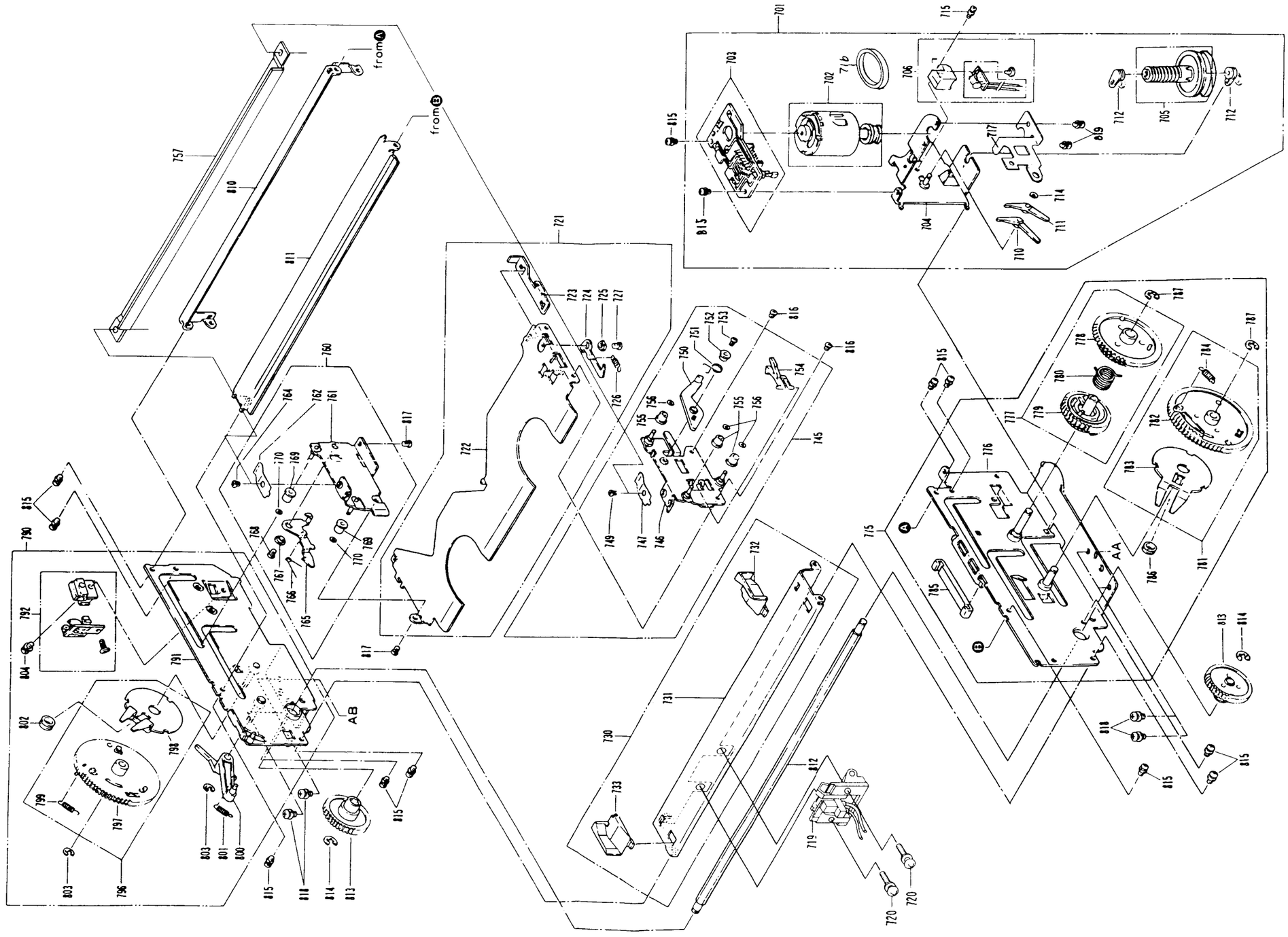
EXPLODED VIEW (DECK 1)



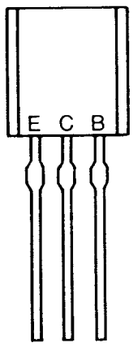
EXPLODED VIEW (DECK 2)



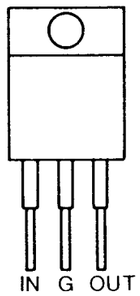
EXPLODED VIEW (DECK 3)



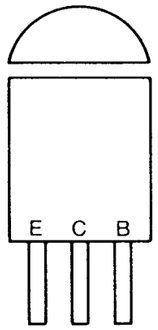
LEAD IDENTIFICATION 1 (IC, Transistor)



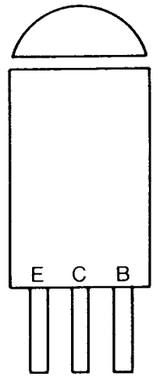
2SA933
2SC1740
2SA608SP
2SA1317
2SC536SP
2SC2839
2SK128
2SD1468SP
2SD1012



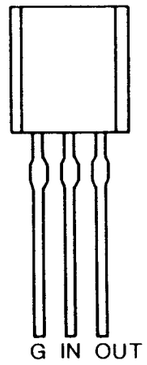
AN78M05F
NJM78M05FA
AN7812F
NJM7812FA
AN7818F
NJM7818FA



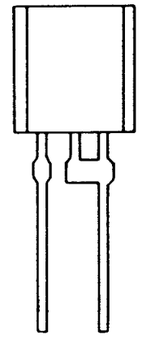
2SC1741A
2SC2058
2SA1038
2SA1016 K



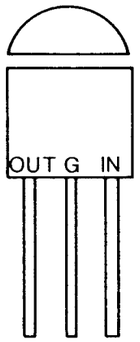
2SA934
2SC2060
2SB1010
2SD1384
2SB892
2SD400
2SD1207



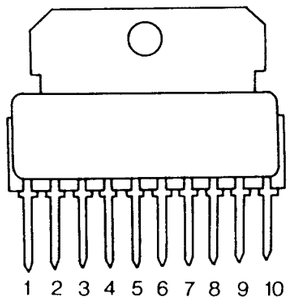
DTA124
DTC124
DTA143X
DTC144
2SC3400
2SA1346



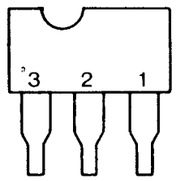
μPC574J



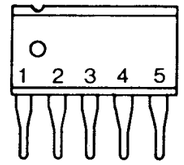
AN78L05
NJM78L05A



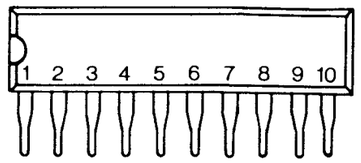
BA6219B
BA6238A
TA7288P



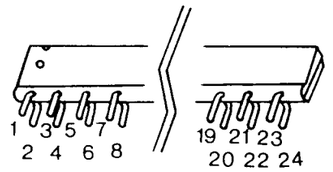
MN1280Q



BA7755

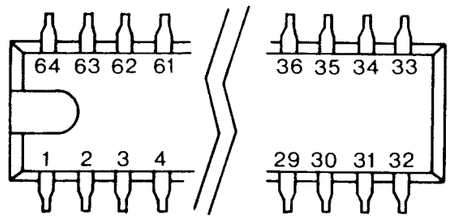


LA7210

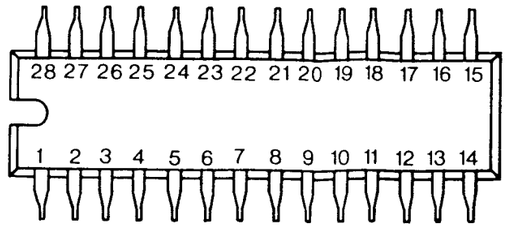


BA7751LS
BA7751ALS

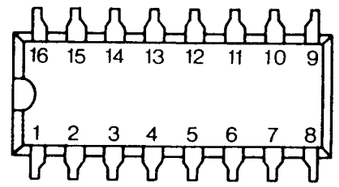
LEAD IDENTIFICATION 2 (IC, Transistor)



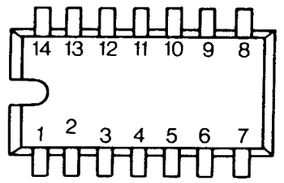
14DN244 C
14DN260



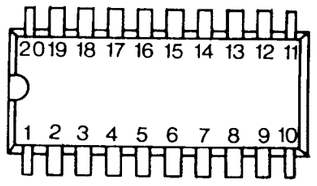
14DN300



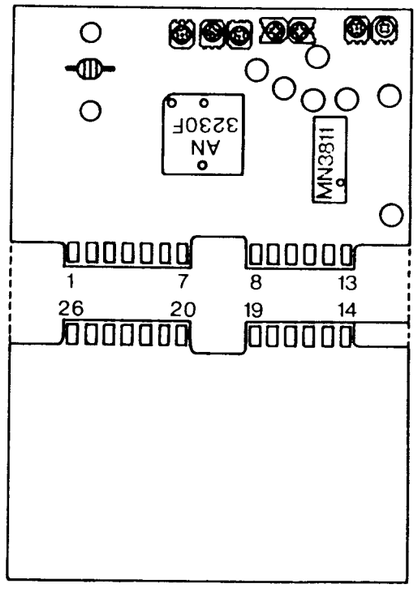
LA7913
MN1225



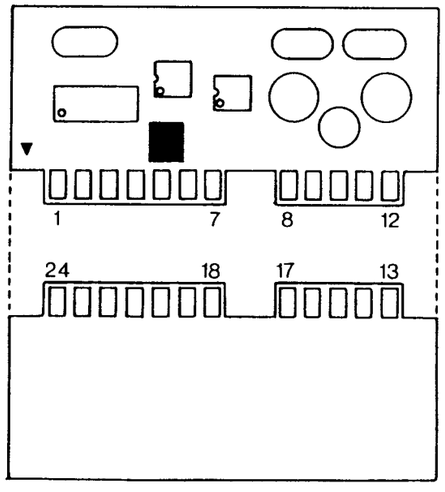
AN6912
LA6339
BA10339
NJM2901N



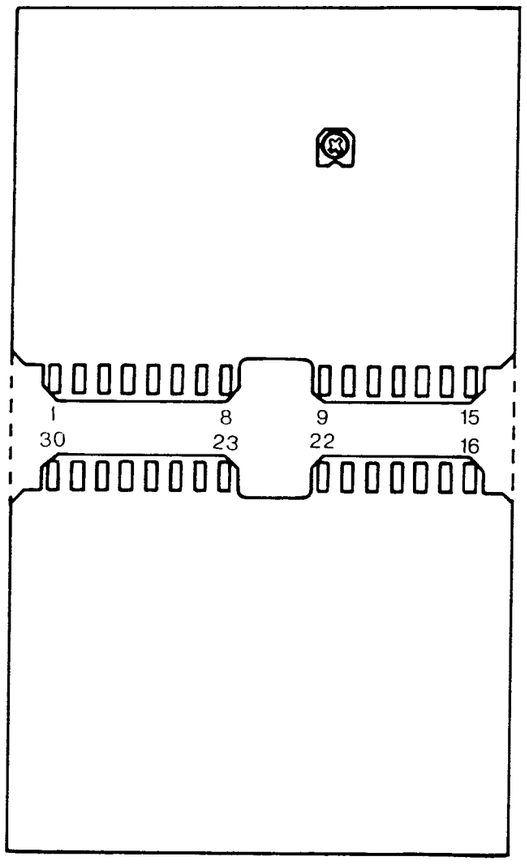
AN3331K



1812119
(VIDEO- Y)
HIC 51



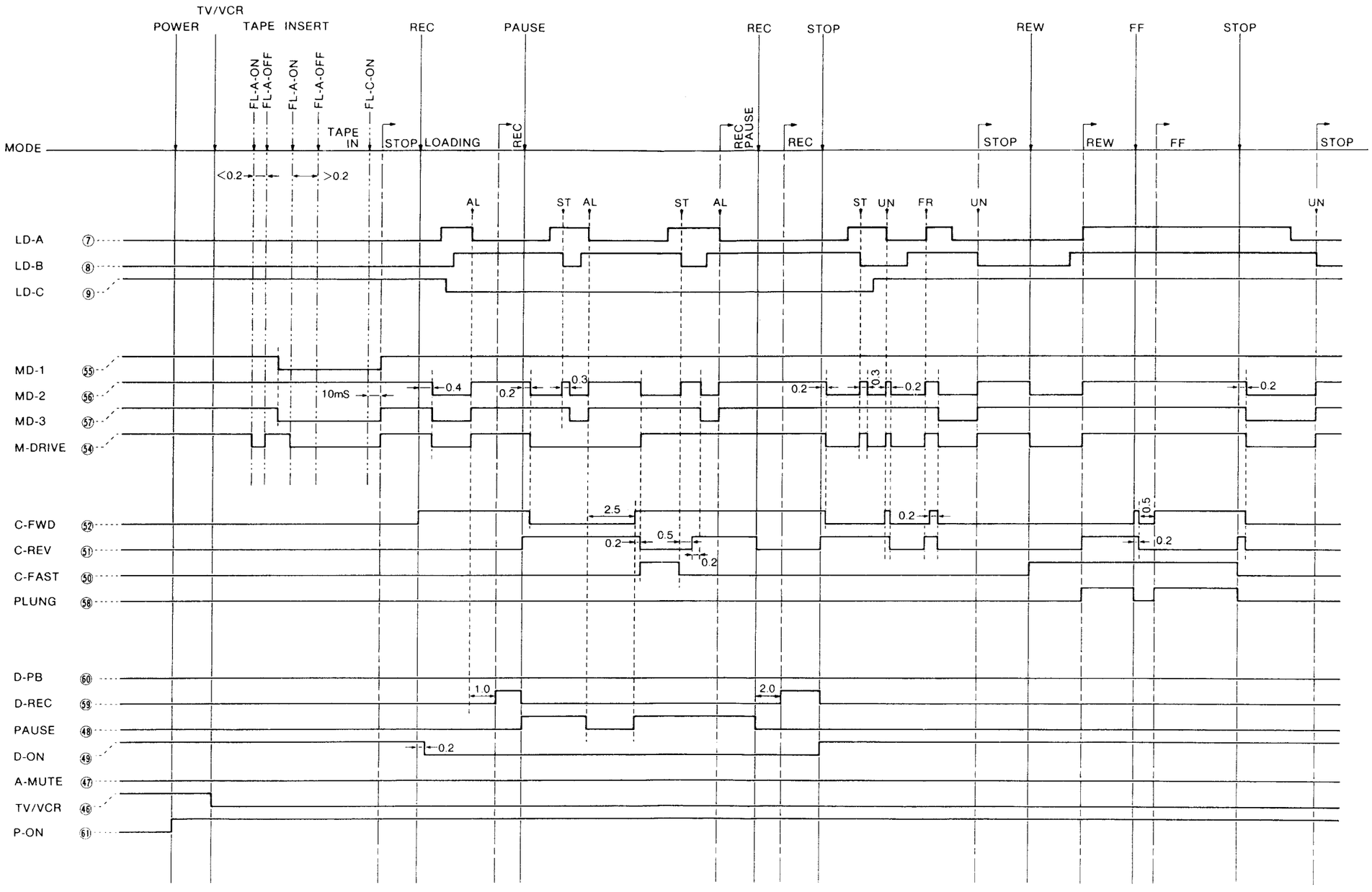
1812120
(SERVO)
HIC 401



1812117
(VIDEO- C)
HIC 101

SYSTEM CONTROL TIMING CHARTS

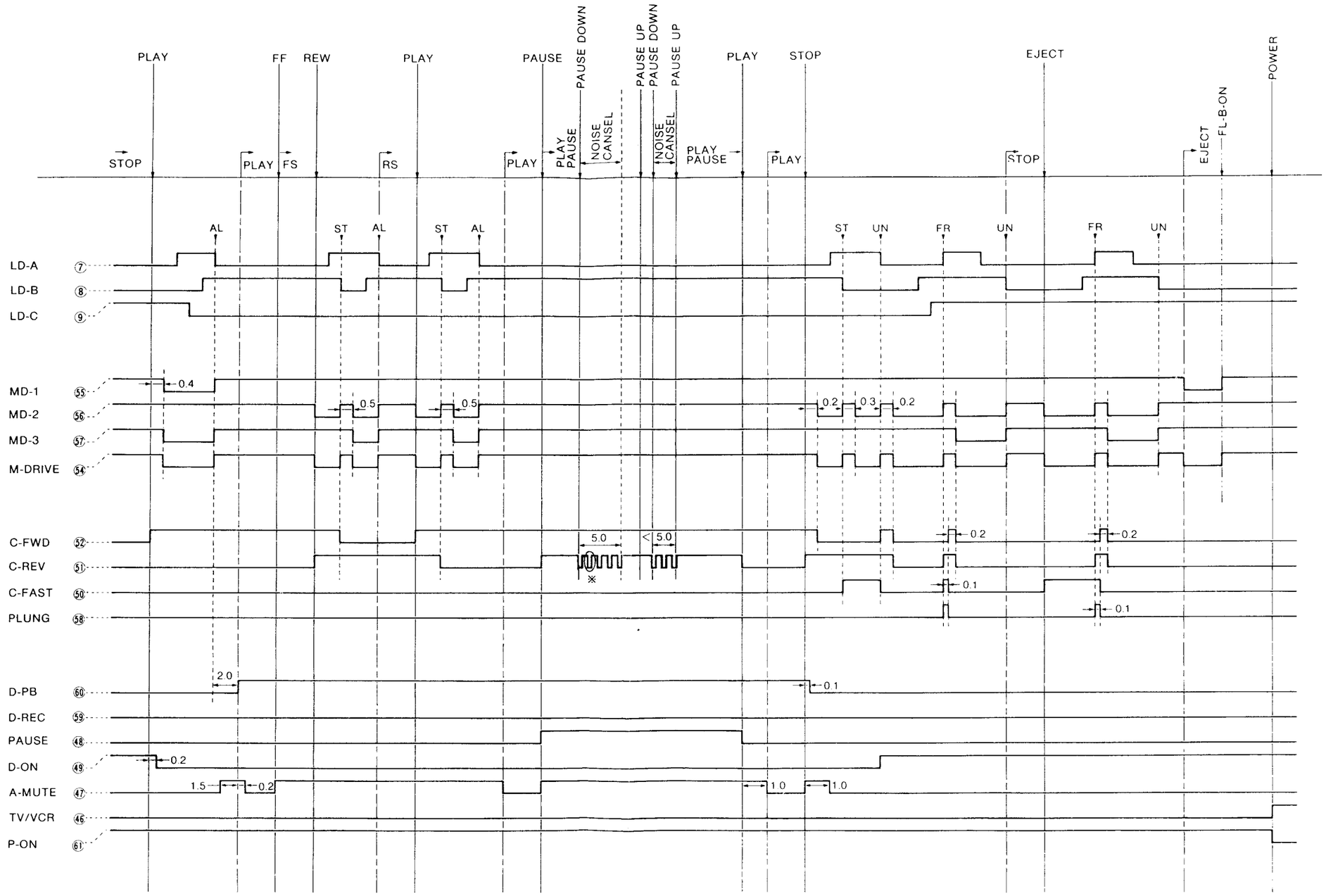
1 POWER → TV/VCR → TAPE INSERT → REC → PAUSE → REC → STOP → REW → FF → STOP



NOTICE

All time values are in second

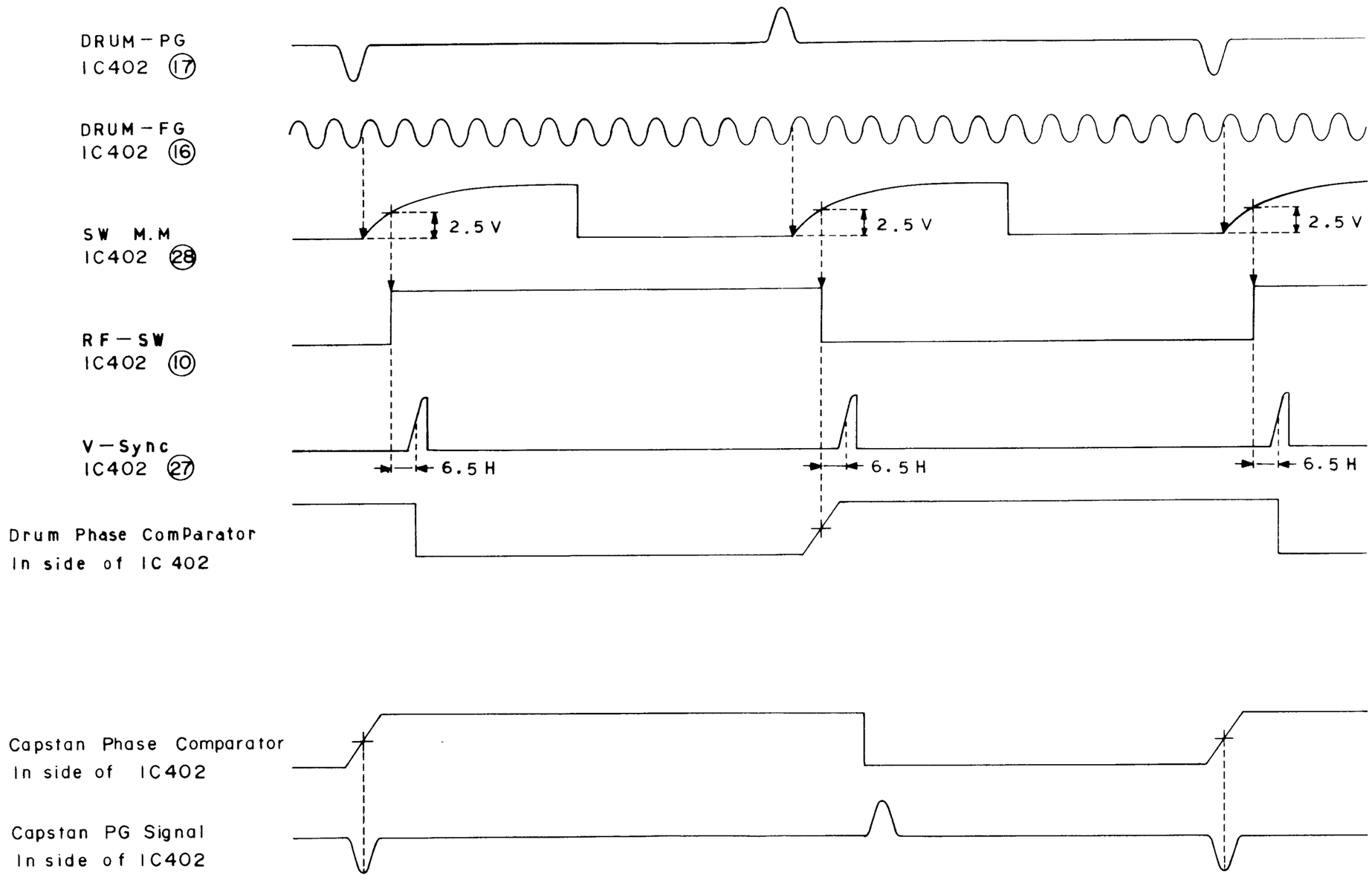
2 STOP → PLAY → FF(FS) → REW(RS) → PLAY → PAUSE → NOISE CANCEL → PAUSE → PLAY → STOP → EJECT → POWER



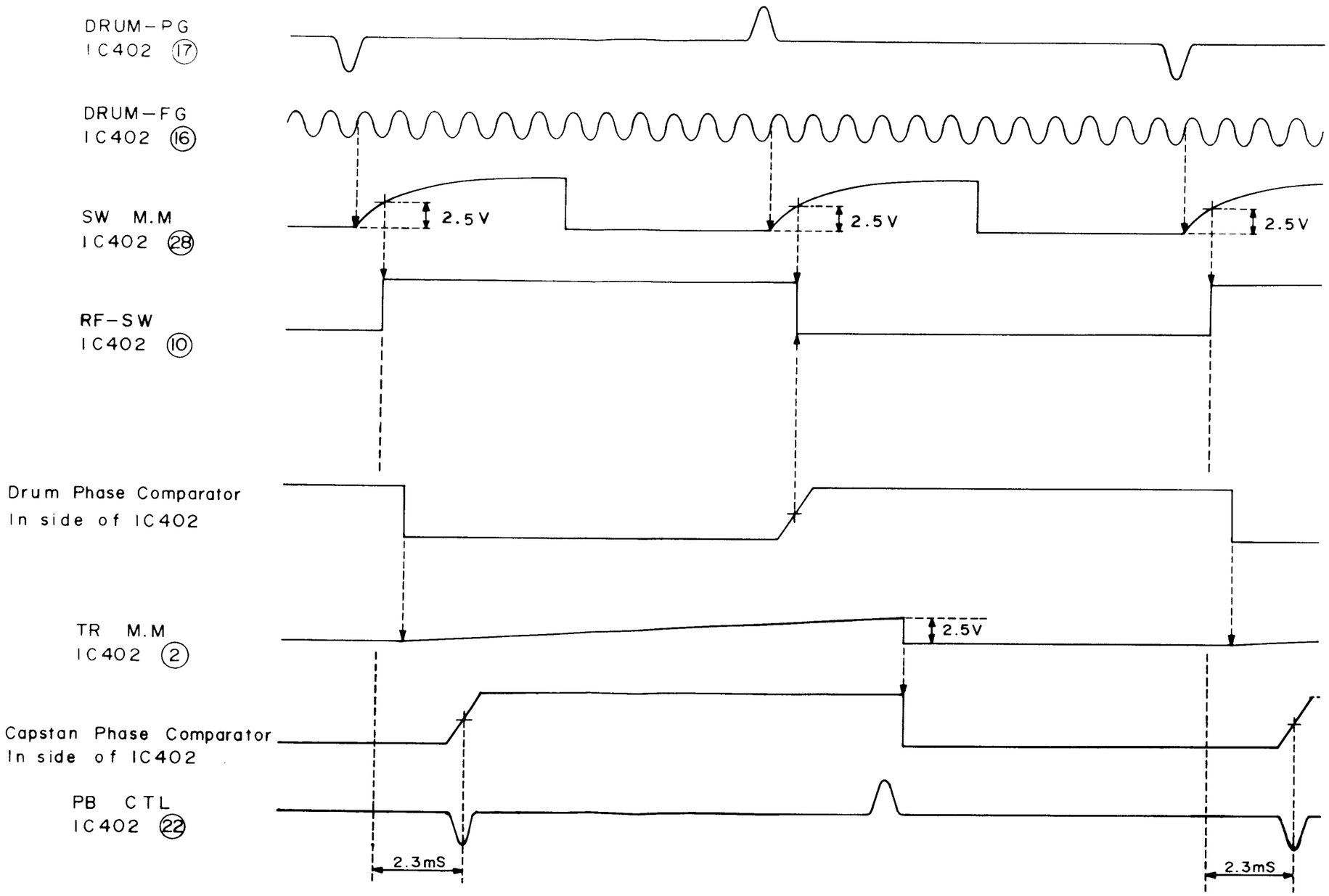
※ 8ms / 80ms

Under "NOISE CANSEL MODE"
If "NOISE CANSEL MODE" is more than "5"sec, it will transfer to "PAUSE MODE" automaticaly.

DRUM AND CAPSTAN TIMING CHARTS (RECORD MODE)



DRUM AND CAPSTAN TIMING CHARTS (PLAYBACK MODE)



SCHEMATIC DIAGRAM
Video/Audio

Luminance + Chrominance(REC)

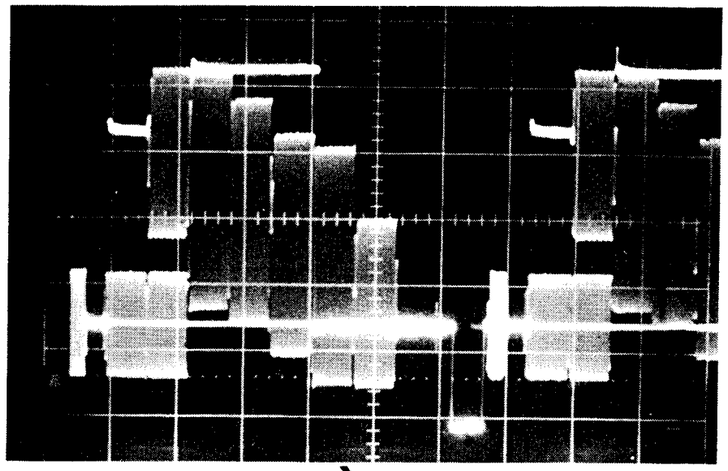
Luminance(REC)

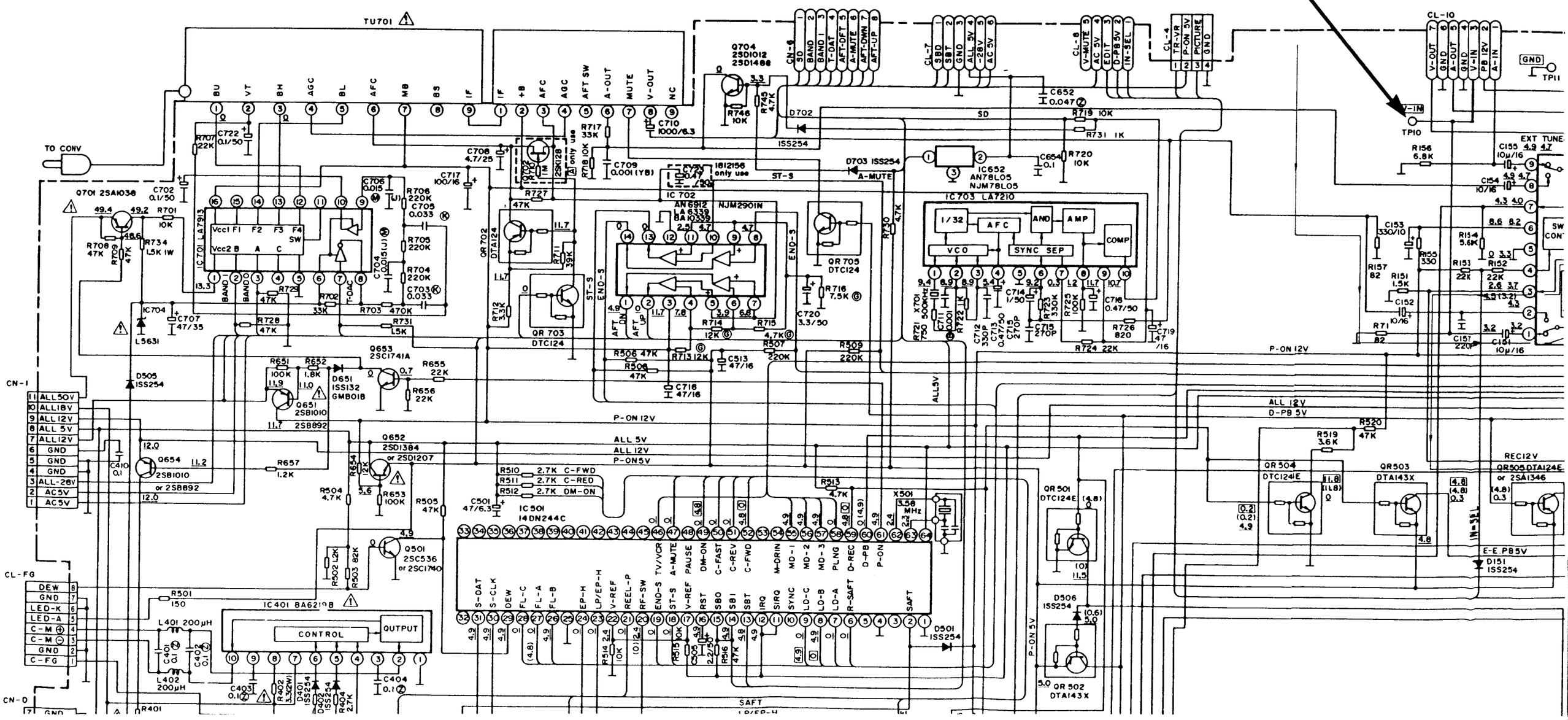
Chrominance(REC)

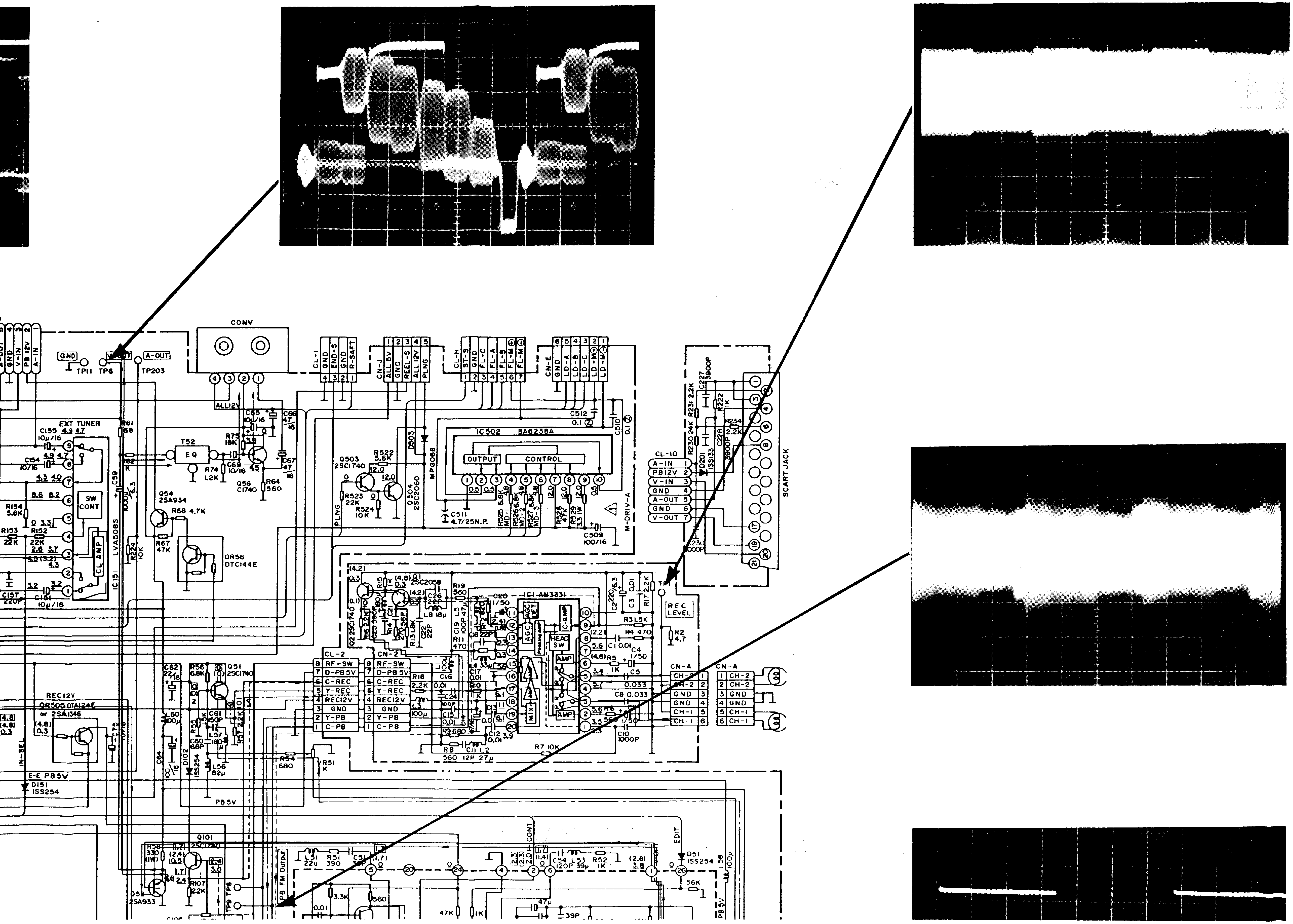
Luminance + Chrominance(PLAY)

Luminance(PLAY)

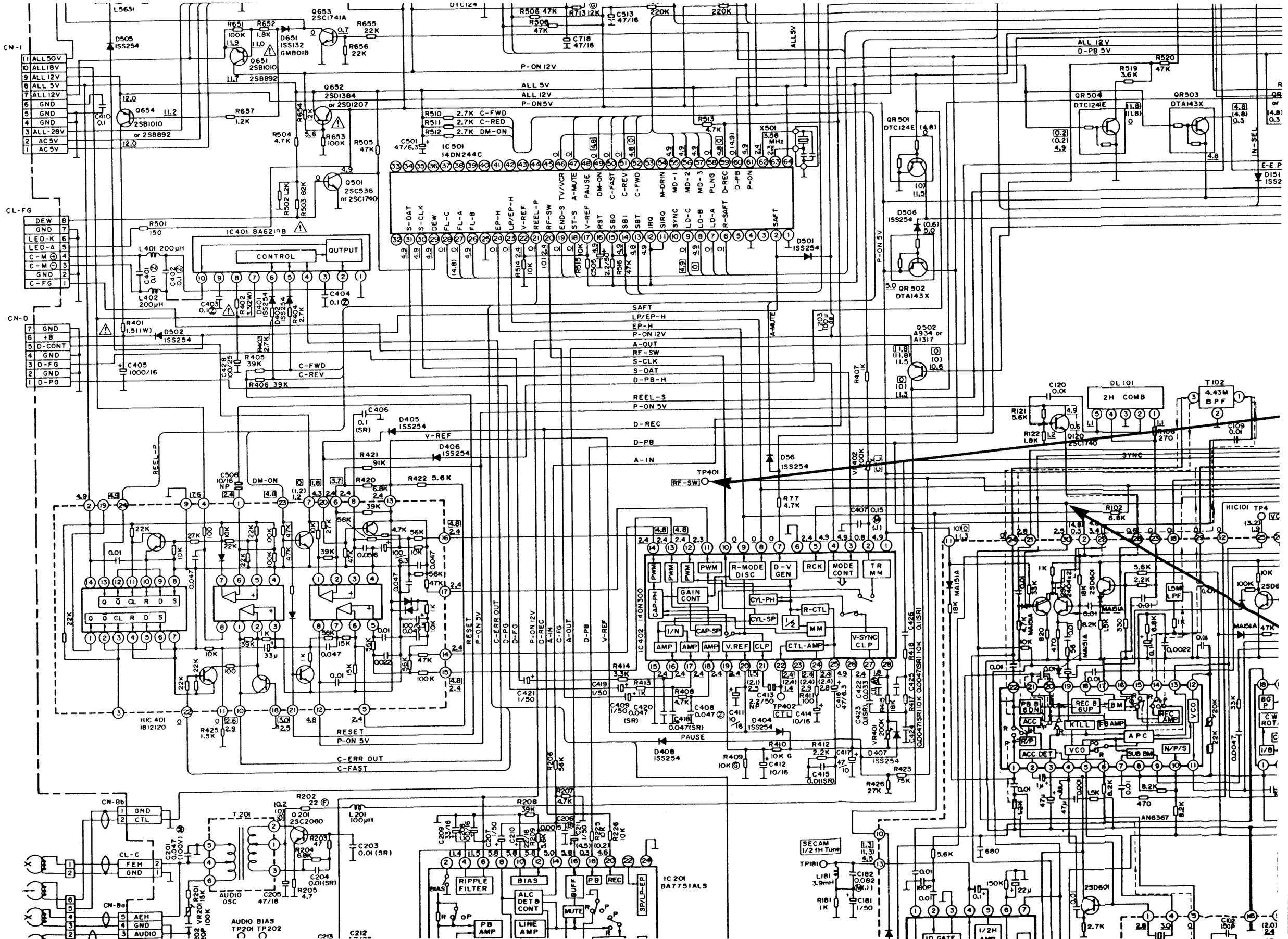
Chrominance(PLAY)

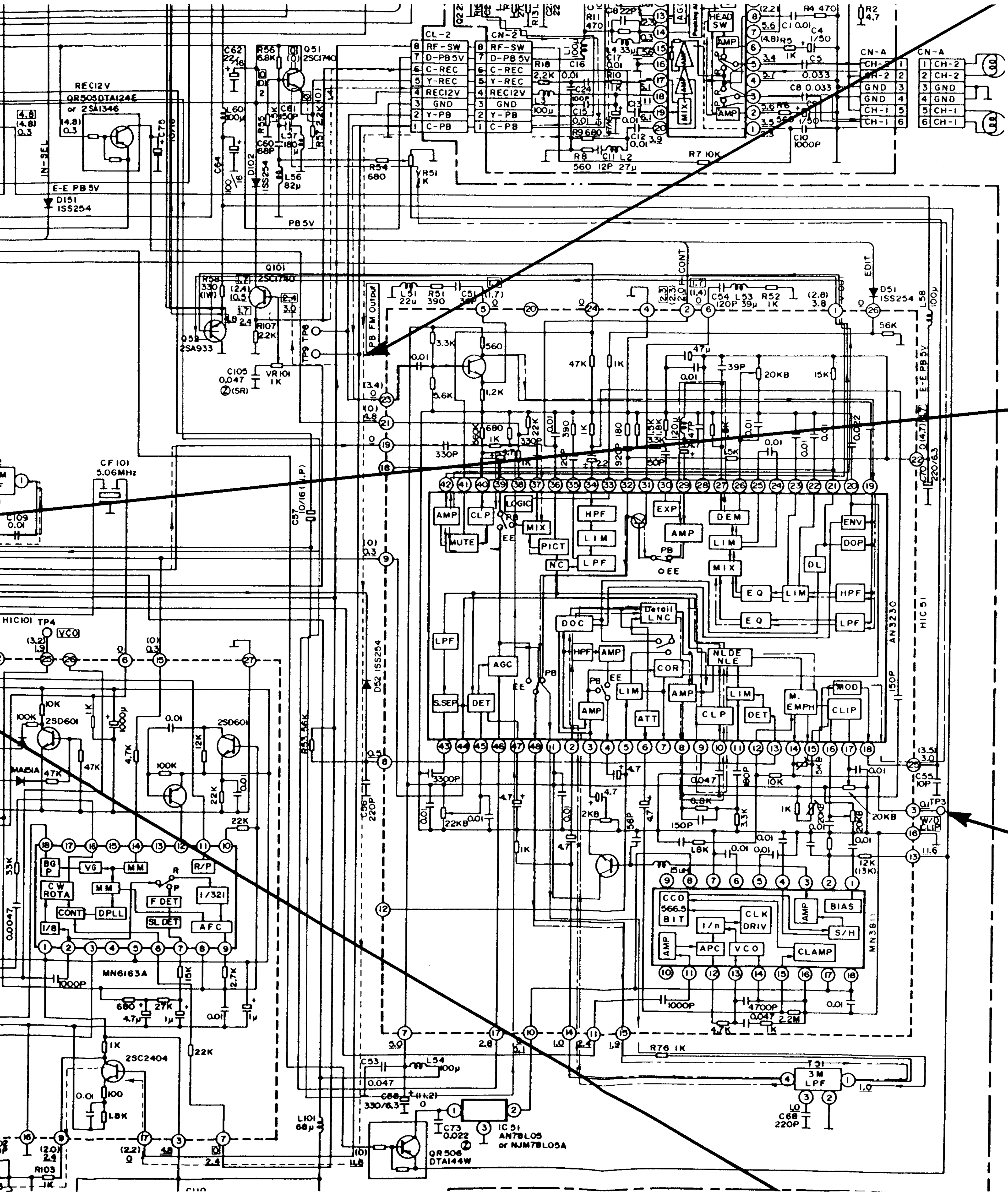




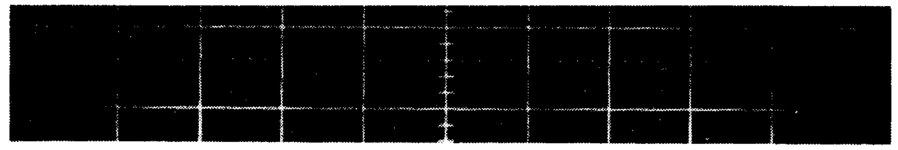
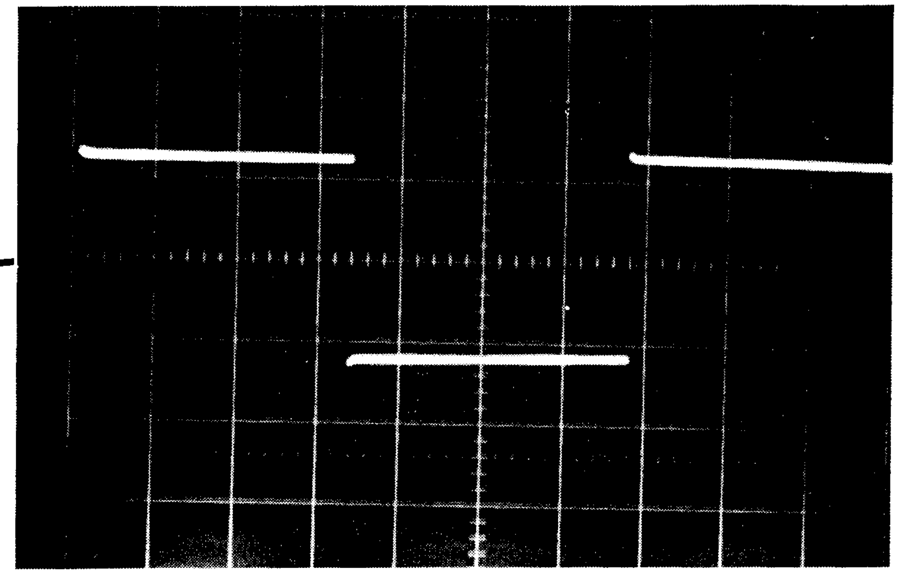
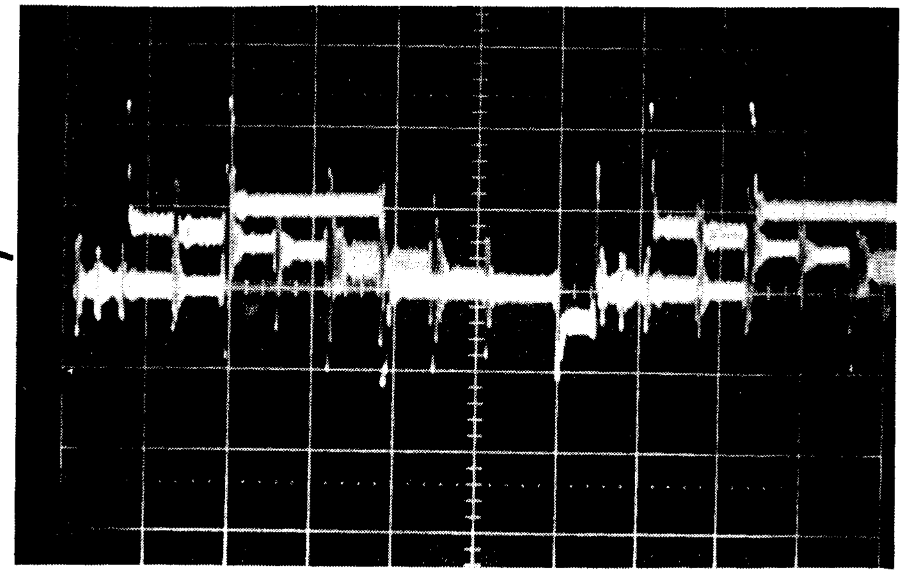


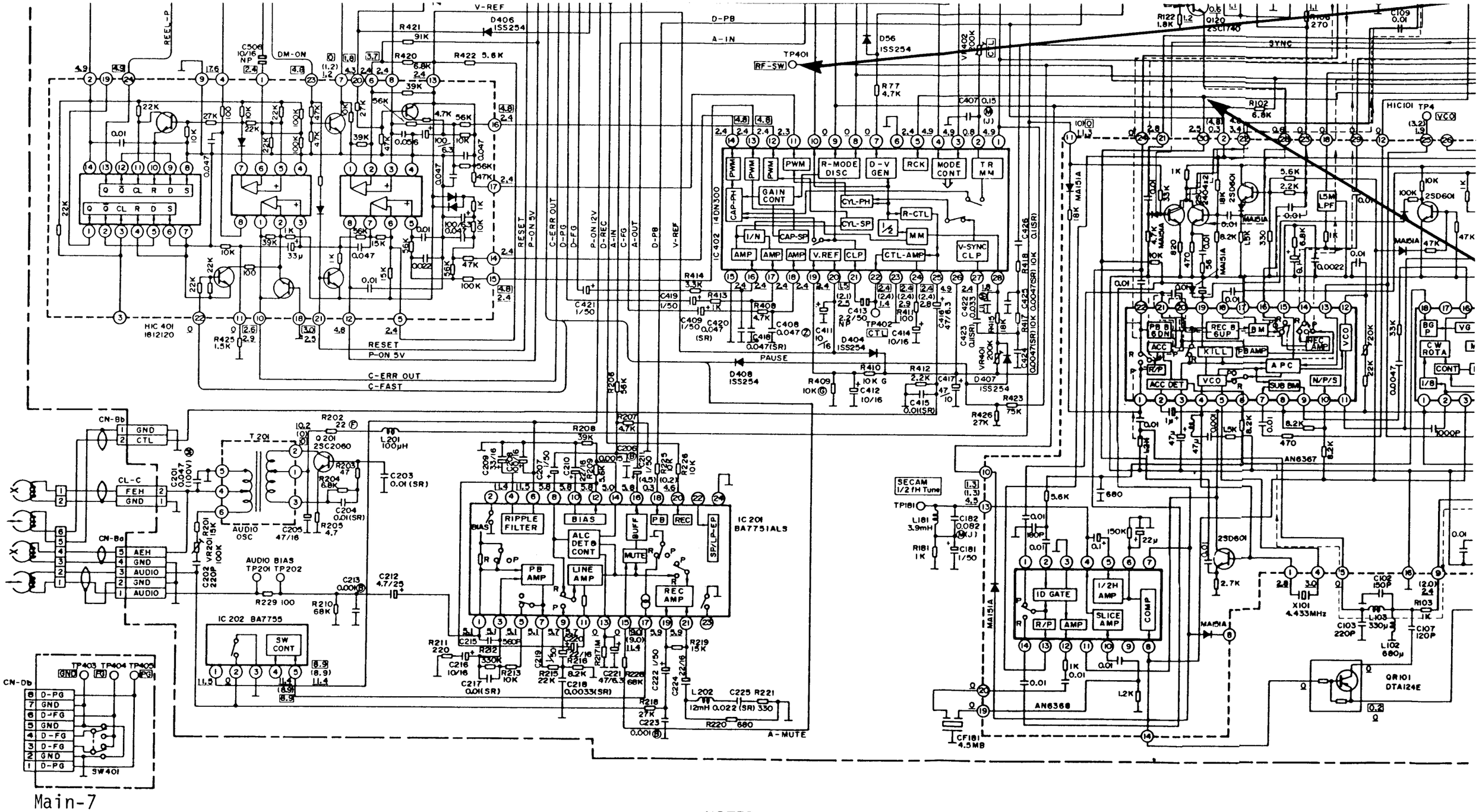
CONV
GND
TP11
TP6
A-OUT
TP203
EXT TUNER
SW CONT
CL AMP
IC151 LVA508S
T52
EQ
Q54 2SA934
QR56 DTC144E
Q56 C1740
Q503 2SC1740
Q504 2SC2060
D503 MPG068
CL-1
CN-J
CL-H
CN-E
IC502 BA6238A
OUTPUT
CONTROL
M-DRIV-A
CL-10
A-IN
PB12V
V-IN
GND
A-OUT
V-OUT
SCART JACK
IC1 AN3331
REC LEVEL
HEAD SW
C-AMP
AGC
AGC DET
AMP
MIX
CL-2
CN-2
RF-SW
D-PB5V
C-REC
Y-REC
REC12V
Y-PB
C-PB
CN-A
CH-2
CH-1
Q51 2SC1740
QR505 DTA124E or 2SA1346
REC12V
IN-SEL
E-E PB5V
D151 1SS254
D102 1SS254
VR51
PB5V
Q101 2SC1740
Q58 2SA933
PB FM Output
TP8
TP9
EDIT
D51 1SS254


CN-I
11 ALL 50V
10 ALL 18V
9 ALL 12V
8 ALL 5V
7 ALL 12V
6 GND
5 GND
4 GND
3 ALL -28V
2 AC 5V
1 AC 5V
CL-FG
DEW 8
GND 7
LED-K 6
LED-A 5
C-M ⊕ 4
C-M ⊖ 3
GND 2
C-FG 1
CN-D
7 GND
6 +B
5 D-CONT
4 GND
3 D-FG
2 GND
1 D-PG
CN-Bb
1 GND
2 CTL
CL-C
1 FEH
2 GND
CN-Ba
5 AEH
4 GND
3 AUDIO
2
1
L5631
D505 1SS254
Q653 2SC1741A
R651 100K
R652 1.8K
D651 1SSI32 GMB01B
R655 22K
R656 22K
Q651 2SB1010
2SB892
Q652 2SD1384 or 2SD1207
Q654 2SB1010 or 2SB892
R657 1.2K
R654 2K
R653 100K
R504 4.7K
R505 47K
C410 0.1
R502 1.2K
R503 82K
Q501 2SC536 or 2SC1740
R501 150
IC401 BA6210B
CONTROL
OUTPUT
L401 200µH
L402 200µH
C401 0.1
C402 0.1
C403 0.1
C404 0.1
D401 1SS254
D402 1SS254
R402 3.32K(W)
R404 2.7K
R401 1.5(1W)
D502 1SS254
C405 1000/16
C428 100/25
R403 2.7K
R405 39K
R406 39K
C-FWD
C-REV
DTC124
R506 47K
R509 47K
R713 12K
C513 47/16
C718 47/16
220K
220K
ALL5V
P-ON 12V
ALL 5V
ALL 12V
P-ON 5V
R510 2.7K C-FWD
R511 2.7K C-RED
R512 2.7K DM-ON
C501 47/6.3
IC 501 14DN244C
R513 4.7K
X501 3.58 MHz
S-DAT
S-CLK
DEW
FL-C
FL-A
FL-B
EP-H
LP/EP-H
V-REF
REEL-P
RF-SW
END-S
TV/VCR
A-MUTE
PAUSE
DM-ON
C-FAST
C-REV
C-FWD
M-DRIN
MD-1
MD-2
MD-3
PLNG
D-REC
D-PB
P-ON
ST-S
V-REF
RST
SBO
SBI
SBT
IRQ
SIRQ
SYNC
LD-C
LD-B
LD-A
R-SAFT
SAFT
R514 2.4 10K
R515 10K
C505 2.2/50
R516 47K
D501 1SS254
ALL 12V
D-PB 5V
R519 3.6K
R520 47K
QR504 DTC124E
QR503 DTA143X
QR501 DTC124E
D506 1SS254
QR502 DTA143X
P-ON 5V
Q502 A934 or A1317
L203 100µ
A-MUTE
R407 1K
SAFT
LP/EP-H
EP-H
P-ON 12V
A-OUT
RF-SW
S-CLK
S-DAT
D-PB-H
REEL-S
P-ON 5V
D-REC
D-PB
A-IN
REEL-P
V-REF
DM-ON
C-ERR OUT
C-FAST
RESET
P-ON 5V
HIC 401 1812120
R425 1.5K
C506 10/16 NP
R420 6.8K
R421 91K
R422 5.6K
C406 0.1 (SR)
D405 1SS254
D406 1SS254
D-PG
D-FG
P-ON 12V
D-REC
A-IN
C-FG
A-OUT
D-PB
V-REF
C421 1/50
R208 56K
R207 4.7K
R208 39K
C206 0.0015
C209 33/16
C207 1/50
C210 22/16
R209 5.6K
C211 1/50
R223 10K
R226 10K
IC 201 BA7751ALS
RIPPLE FILTER
BIAS
ALC DET & CONT
LINE AMP
PB AMP
BUFF
MUTE
PB
REC
SP/LP-EP
T201
Q 201 2SC2060
R202 22 Ⓕ
L201 100µH
C203 0.01 (SR)
R203 47
R204 6.8K
C204 0.01(SR)
R205 4.7
C205 47/16
AUDIO OSC
C201 0.047 (100V)
R201 15K
VR201 100K
AUDIO BIAS
TP201 TP202
C213
C212
C-ERR OUT
C-FAST
RESET
P-ON 5V
C-FWD
C-REV
PAUSE
D408 1SS254
R409 10K G
C412 10/16
R410 10K G
R412 2.2K
C415 0.01(SR)
C417 47/10
D407 1SS254
R423 75K
R426 27K
C414 10/16
D404 1SS254
TP402
CTL
C411 10/16
C408 0.047
C418 0.047(SR)
R414 3.3K
R413 1K
C419 1/50
C409 1/50
C420 0.047 (SR)
R408 4.7K
IC 402 14ON300
PWM
GAIN CONT
CAP-PH
CAP-SP
I/N
AMP
V.REF
CLP
R-MODE DISC
D-V GEN
RCK
MODE CONT
TR MM
CYL-PH
CYL-SP
R-CTL
1/2
MM
CTL-AMP
V-SYNC CLP
C422 0.033
C423 0.1(SR)
C424 0.0047(SR)
R415 18K
R417 10K
C425 0.0047(SR)
R418 10K
C426 0.1(SR)
VR401 200K
D56 1SS254
VR402 200K
TP401
R77 4.7K
C407 0.15
R102 6.6K
DL101 2H COMB
T102 4.43M BPF
R121 3.6K
R122 1.8K
C120 0.01
C109 0.01
R106 270
2SC1740
SYNC
HIC101 TP4
5.6K
2.2K
1K
33K
18K
2SD601
MA151A
18K MA151A
L5M LPF
0.0022
6.8K
1.5K
330
820
470
56
4.7K
10K
100K
2SD601
2.7K
150K
22µ
180P
0.082
3.9mH
R181 1K
C181 1/50
C182
TP181
SECAM 1/2 fH Tune
PB B 6DN
REC B 6UP
DM
REC AMP
VCO
ACC
KILL
PB AMP
APC
R/P
ACC DET
N/P/S
SUB BM
AN6367
680
47µ
0.0047
0.0068
0.0082
0.0056
0.0033
0.0018
0.0015
0.001
0.047
0.022
0.01
0.1
0.15
0.33
0.47
1.0
2.2
3.3
4.7
6.8
8.2
15K
20K
22K
33K
47K
100K
150K
180P
470
680
1K
1.5K
2.2K
2.7K
3.3K
5.6K
6.8K
8.2K
10K
15K
18K
22K
33K
39K
47K
56K
68K
91K
100K
150K
200K
220K
330K
470K
680K
1M
2.2M
3.3M
4.7M
10M



CL-2
CN-2
RF-SW
D-PB5V
C-REC
Y-REC
REC12V
GND
Y-PB
C-PB
CN-A
CH-2
CH-1
HEAD SW
AMP
MIX
REC12V
QR505 DTA124E
or 2SA1346
IN-SEL
E-E PB5V
D151
1SS254
Q51
2SC1740
D102
1SS254
PB5V
Q101
2SC1740
Q52
2SA933
VR101
1K
TP8
TP9
PB FM Output
CF101
5.06MHz
HIC101
TP4
VCO
2SD601
MA151A
MN6163A
BG P
VG
MM
R/P
CW ROTA
F DET
1/321
CONT
DPLL
SL DET
AFC
2SC2404
L101
68μ
R103
CONT
EDIT
D51
1SS254
AMP
CLP
LOGIC
MIX
PICT
NC
LPF
HPF
LIM
EXP
DEM
MUTE
ENV
DOP
DL
EQ
DOC
Detail LNC
NLDE NLE
COR
AGC
S.SEP
DET
ATT
CLP
M. EMPH
MOD
CLIP
AN3230
HIC51
D52 1SS254
TP3
W/O CLIP
CCD
566.5 BIT
CLK DRIV
1/n
APC
VCO
CLAMP
BIAS
S/H
MN3811
T51
3M LPF
C68
220P
IC51
AN78L05
or NJM78L05A
QR506
DTA144W



Main-7
New FTZ

NOTE: All voltages are DC measured with a SSVM.
The DC voltage measured at E-E mode.

(▭ : at record mode.)
(▭ : at playback mode.)
Ⓕ : Fusing resistor.

NOTES:

1. ALL RESISTANCE VALUES ARE INDICATED IN OHM (K = 10^3, M=10^6).
2. ALL CAPACITANCE VALUES ARE INDICATED IN µF (P = 10^{-6} µF).
3. VOLTAGES ARE MEASURED WITH SSVM (Z: > 10K OHM) FRONT POINT INDICATED TO CHASSIS GROUND AT NO SIGNAL CONDITION UNLESS OTHERWISE NOTED. (SEE VOLTAGE CHART.)
4. CAPACITOR TYPES ARE (PL) = POLYPROPYLANE, (SC) = SEMI-CONDUCTIVE, (M) = MYLAR, OTHERS ARE CERAMIC.

WARNING:
REPLACEMI
ON THIS SC
PARTS. DON
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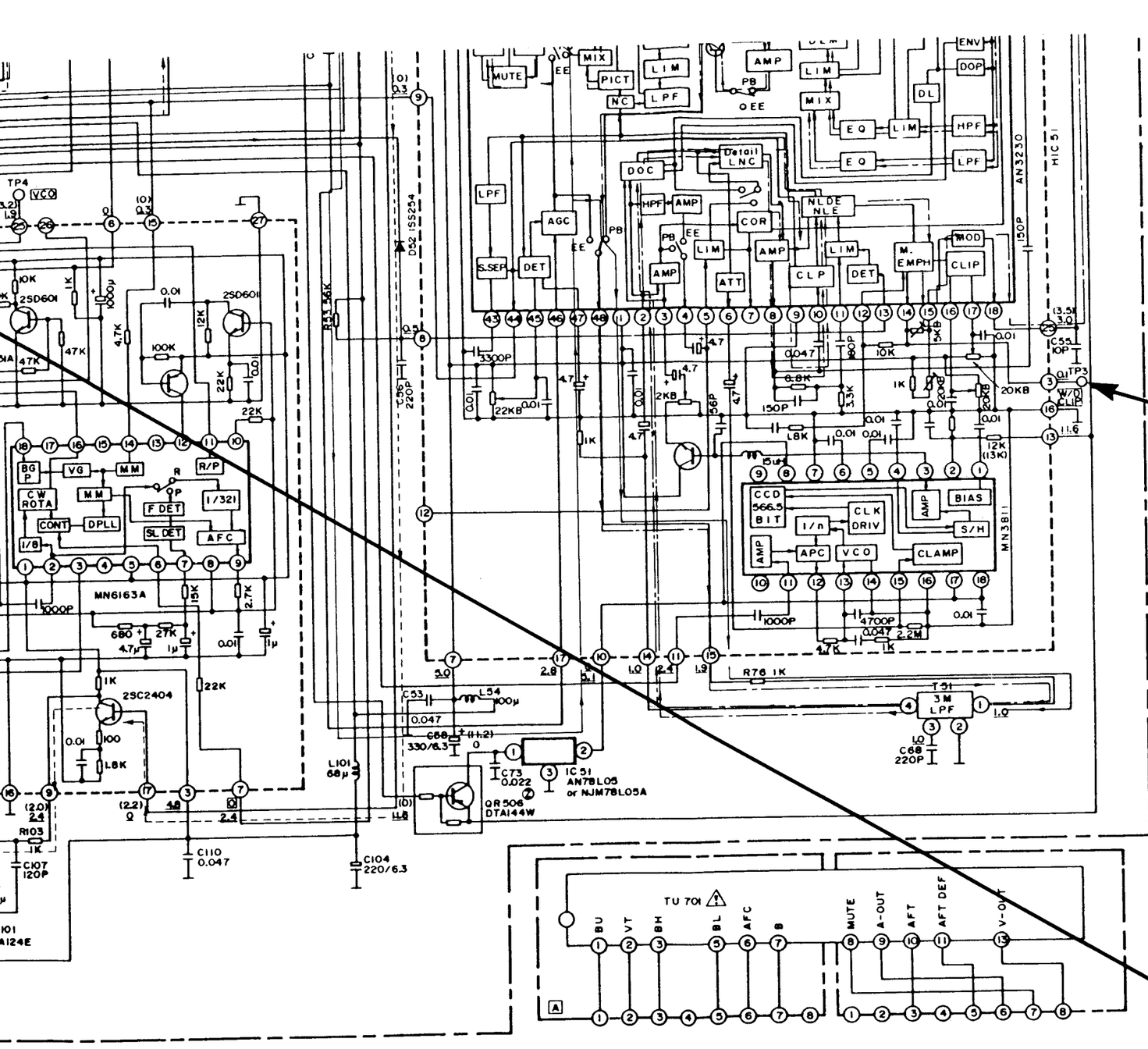
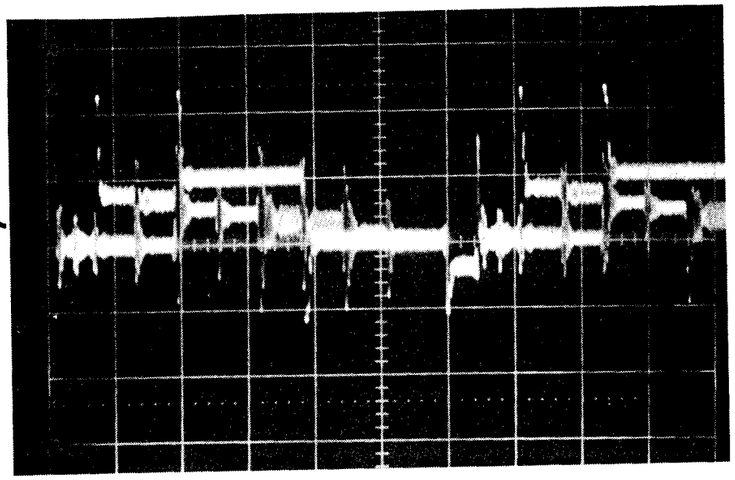
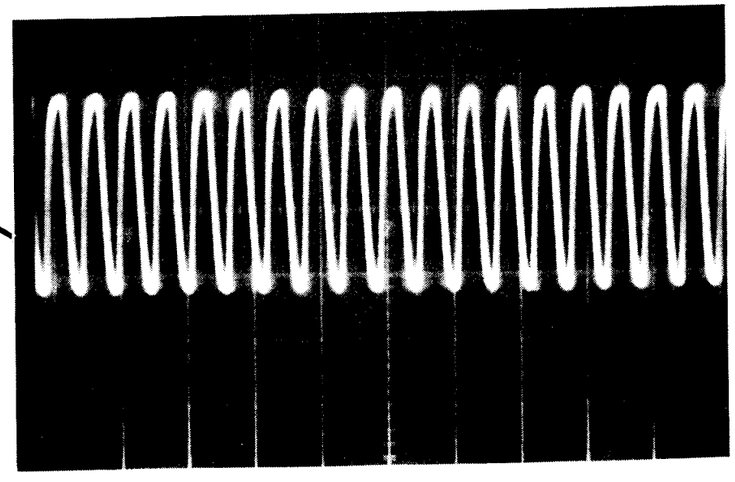
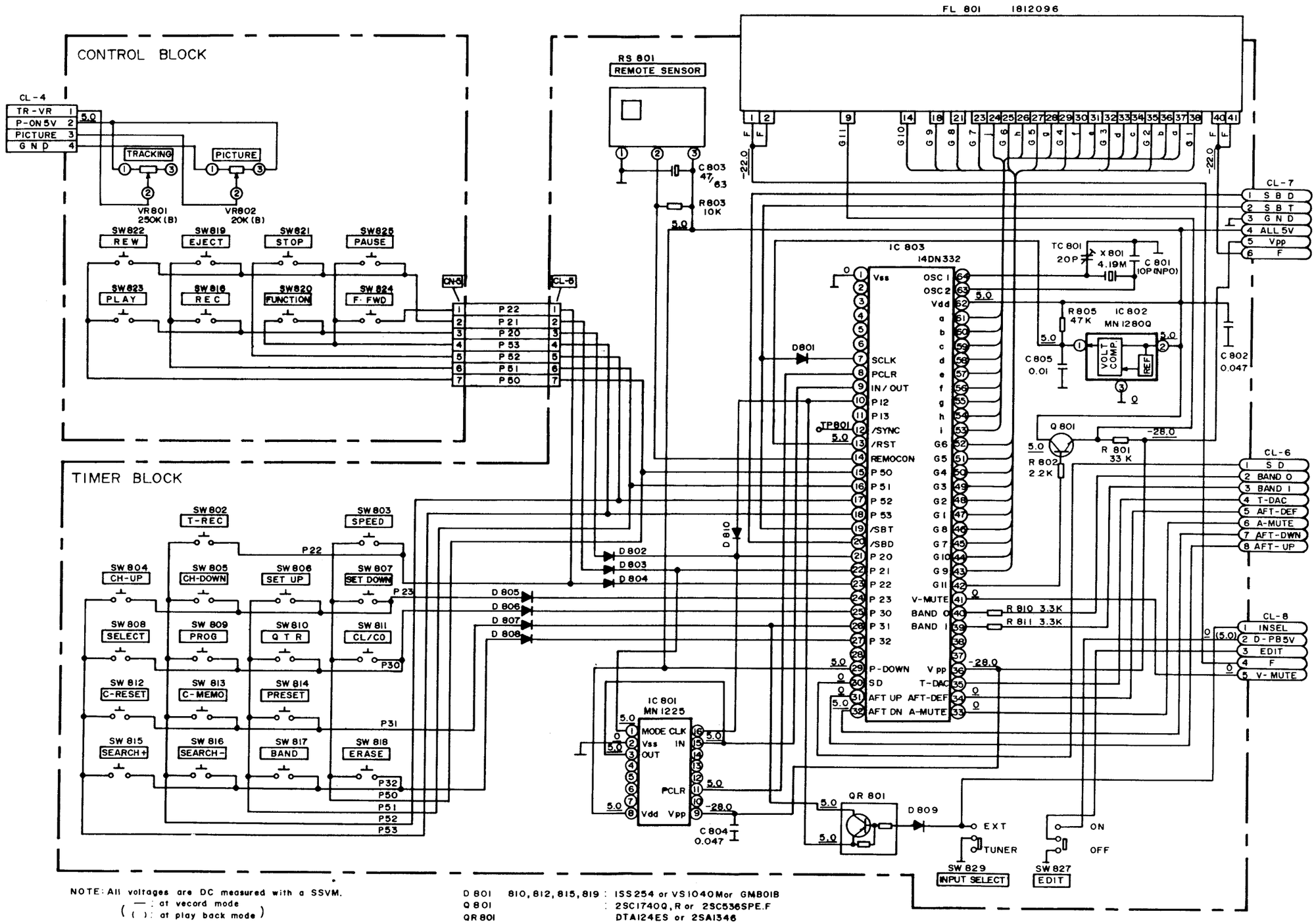






ARNING:
EPLACEMENT PARTS WHICH SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING
N THIS SCHEMATIC DIAGRAM, REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT
ARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL
O MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE
CCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

SCHEMATIC DIAGRAM (CONTROL/TIMER)

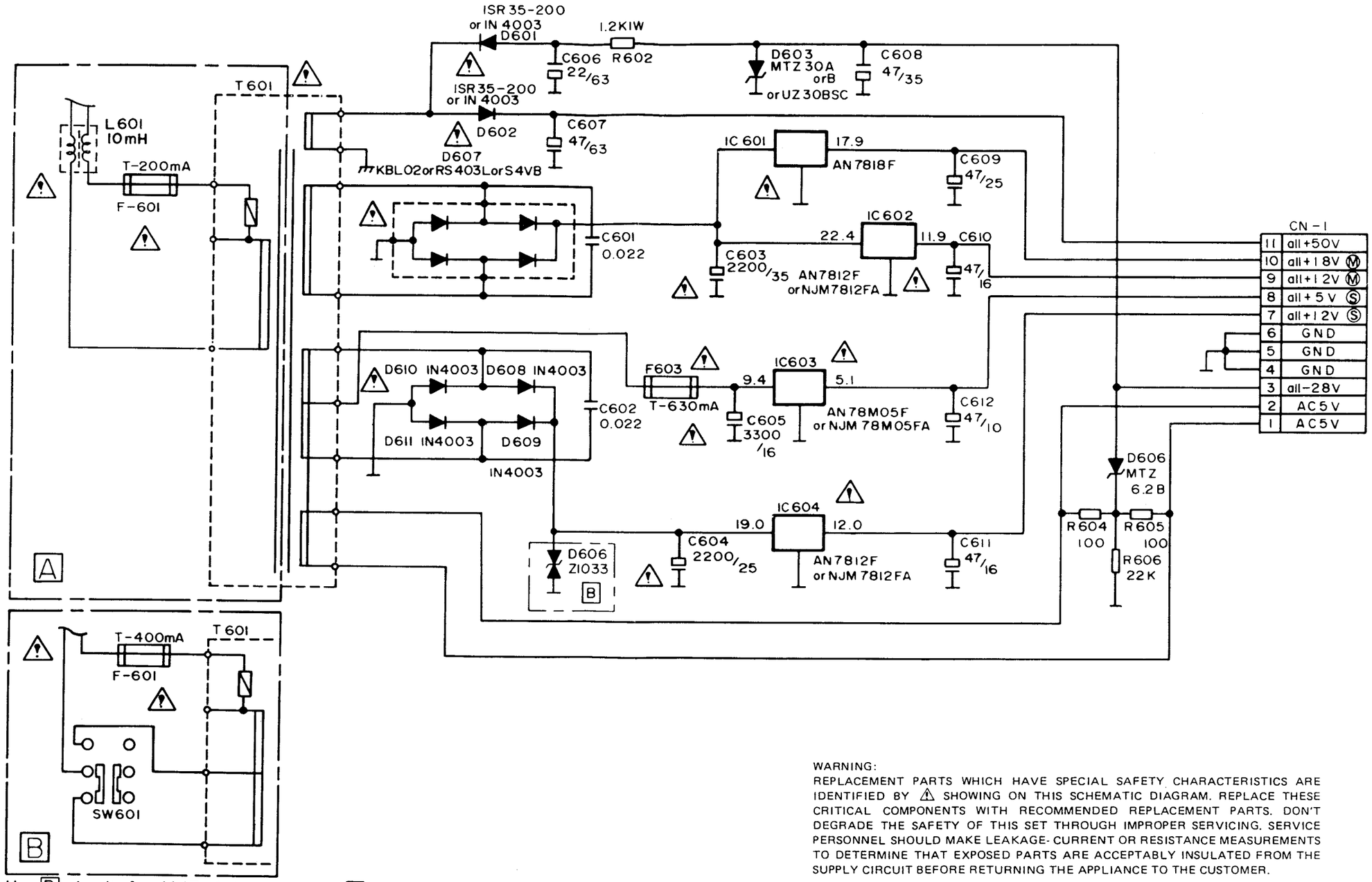


NOTE: All voltages are DC measured with a SSVM.
— : at vecord mode
( ) : at play back mode)

D 801 810, 812, 815, 819 : ISS254 or VS1040Mor GMB018
Q 801 : 2SC1740Q, R or 2SC536SPE.F
QR 801 : DTA124ES or 2SA1346

TC-15

SCHEMATIC DIAGRAM Power Supply



Use [B] circuit for M/E Asia instate of [A] circuit

WARNING:
REPLACEMENT PARTS WHICH HAVE SPECIAL SAFETY CHARACTERISTICS ARE IDENTIFIED BY ⚠ SHOWING ON THIS SCHEMATIC DIAGRAM. REPLACE THESE CRITICAL COMPONENTS WITH RECOMMENDED REPLACEMENT PARTS. DON'T DEGRADE THE SAFETY OF THIS SET THROUGH IMPROPER SERVICING. SERVICE PERSONNEL SHOULD MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

PS-2

ELECTRICAL PARTS LIST

(PRV16)

Ref. No	Description	Parts No.
	PCB Ass'y, Head AMP	1613906X
	Capacitors	
C1	Ceramic 0.01 μF /50V +80/ −20%	1220842
C2	Electrolytic 220 μF /6.3V ±20%	526R227
C3	Ceramic 0.01 μF /50V +80/ −20%	1220842
C4	Electrolytic 1 μF /50V ±20%	526W105
C5	Ceramic 0.033 μF /50V +80/ −20%	1220887
C6-7	Not used	
C8	Ceramic 0.033 μF /50V +80/ −20%	1220887
C9	Electrolytic 1 μF /50V ±20%	526W105
C10	Ceramic 1000pF /50V ±10% YB	1283102
C11	Ceramic 12pF /50V ±5 % SL	1270120
C12-13	Ceramic 0.01 μF /50V +80/ −20%	1220842
C14	Electrolytic 47 μF /16V ±20%	526T476
C15-17	Ceramic 0.01 μF /50V +80/ −20%	1220842
C18	Ceramic 22 pF /50V ±5 % SL	1270220
C19	Ceramic 100pF /50V ±5 % SL	1270101
C20	Electrolytic 1 μF /50V ±20%	526W105
C21	Ceramic 56pF /50V ±5 % SL	1270560
C22	Not used	
C23	Ceramic 390pF /50V ±5 % SL	1270391
C24	Ceramic 82pF /50V ±5 % SL	1270820
C25-26	Ceramic 22pF /50V ±5 % SL	1270220
	Coils	
L1	Microinductor 100 μH	2162101
L2	Microinductor 27 μH	2162270
L3	Microinductor 100 μH	2162101
L4	Microinductor 33 μH	2162330
L5	Microinductor 47 μH	2162470
L6	Not used	
L7	Microinductor 180 μH	2162181
L8	Microinductor 18 μH	2162180
	IC	
IC1	AN3331K (Linear) (Head AMP.)	14LN235
	Resistors	
R1	Not used	
R2	Carbon 4.7 ohm 1/5W ±5 %	1324479
R3	Carbon 1.5k ohm 1/5W ±5 %	1324152
R4	Carbon 470 ohm 1/5W ±5 %	1324471
R5	Carbon 1k ohm 1/5W ±5 %	1324102
R6	Carbon 560 ohm 1/5W ±5 %	1324561
R7	Carbon 10k ohm 1/5W ±5 %	1324103
R8	Carbon 560 ohm 1/5W ±5 %	1324561
R9	Carbon 680 ohm 1/5W ±5 %	1324681
R10	Carbon 1k ohm 1/5W ±5 %	1324102
R11	Carbon 470 ohm 1/5W ±5 %	1324471
R12	Carbon 820 ohm 1/5W ±5 %	1324821
R13	Carbon 1.8k ohm 1/5W ±5 %	1324182
R14	Carbon 270 ohm 1/5W ±5 %	1324271
R15	Carbon 1k ohm 1/5W ±5 %	1324102
R16-18	Carbon 2.2k ohm 1/5W ±5 %	1324222
R19	Carbon 560 ohm 1/5W ±5 %	1324561
	Trasistors	
Q1	2SC2839EF or 2SC2058QR	C2839EF or C2058QR
Q2	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
	Miscellaneous	
CN-A	Connector Base 6P	1770147
CN-2	Connector Base 8P	1770264
	Shield Plate, Top	6S50321
	Shield Plate, Bottom	6S50322

MLV107

Ref. No	Description	Parts No.
	PCB Ass'y, Main	1613937AX
	Capacitors	
C51	Ceramic 39 pF /50V ±5 % SL	1270390
C54	Ceramic 120 pF /50V ±5 % SL	1270121
C55	Ceramic 10 pF /50V ±5 % SL	1270100
C56	Ceramic 220 pF /50V ±5 % SL	1270221
C57	Electrolytic 10 μF /16V ±20% (N.P.)	126U106
C58	Electrolytic 330 μF /6.3V ±20%	126A337
C59	Electrolytic 1000 μF /6.3V ±20%	126A108
C60	Ceramic 68 pF /50V ±5 % SL	1270680
C61	Ceramic 150 pF /50V ±5 % SL	1270151
C62	Electrolytic 22 μF /16V ±20%	126C226
C63	Not used	
C64	Electrolytic 100 μF /16V ±20%	126C107
C65	Electrolytic 10 μF /16V ±20%	126C106
C66-67	Electrolytic 47 μF /16V ±20%	126C476
C68	Ceramic 220 pF /50V ±5 % SL	1270221
C69	Electrolytic 10 μF /16V ±20%	126C106
C70	Electrolytic 220 μF /6.3V ±20%	126A227
C71-72	Not used	
C73	Ceramic 0.022 μF /50V +80/ −20%	12F3223
C74	Not used	
C75	Electrolytic 10 μF /16V ±20%	126C106
C101	Not used	
C102	Ceramic 150 pF /50V ±5 % SL	1270151
C103	Ceramic 220 pF /50V ±5 % SL	1270221
C104	Electrolytic 220 μF /6.3V ±20%	126A227
C105	Semi-conductive 0.047 μF /16V +80/ −20%	1220523
C106	Not used	
C107	Ceramic 120 pF /50V ±5 % SL	1270121
C108	Not used	
C109	Ceramic 0.01 μF /50V +80/ −20%	12F3103
C120	Ceramic 0.01 μF /50V +80/ −20%	12F3103
C151-152	Electrolytic 10 μF /16V ±20%	126C106
C153	Electrolytic 330 μF /10V ±20%	126B337
C154-155	Electrolytic 10 μF /16V ±20%	126C106
C156	Not used	
C181	Electrolytic 1 μF /50V ±20%	126F105
C182	Polyester Film 0.082 μF /50V ±20%	1254823
C201	Polyester Film 0.047 μF /100V ±5 %	1255473
C202	Ceramic 220 pF /50V ±5 % SL	1270221
C203-204	Semi-conductive 0.01 μF /25V ±10%	12Y2103
C205	Electrolytic 47 μF /16V ±20%	126C476
C206	Ceramic 0.0015 μF /50V ±10% YB	12B3152
C207	Electrolytic 1 μF /50V ±20%	126F105
C208	Electrolytic 100 μF /16V ±20%	126C107
C209	Electrolytic 33 μF /16V ±20%	126C336
C210	Electrolytic 22 μF /16V ±20%	126C226
C211	Electrolytic 1 μF /50V ±20%	126F105
C212	Electrolytic 4.7 μF /25V ±20%	126D475
C213	Ceramic 0.001 μF /50V ±10% YB	12B3102
C214-215	Not used	
C216	Electrolytic 10 μF /16V ±20%	126C106
C217	Semi-conductive 0.01 μF /25V ±10%	12Y2103
C218	Semi-conductive 0.0033 μF /25V ±10%	12Y2332
C219	Electrolytic 1 μF /50V ±20%	126F105
C220	Electrolytic 22 μF /16V ±20%	126C226
C221	Electrolytic 47 μF /6.3V ±20%	126A476
C222	Electrolytic 1 μF /50V ±20%	126F105
C223	Ceramic 0.001 μF /50V ±10% YB	12B3102
C224	Electrolytic 22 μF /16V ±20%	126C226
C225	Semi-conductive 0.022 μF /25V ±10%	12Y2223
C401-404	Semi-conductive 0.1 μF /25V +80/ −20%	1220461 or 1220520
C405	Electrolytic 1000 μF /16V ±20%	626C108
C406	Semi-conductive 0.1 μF /12V ±10%	12Y1104
C407	Polyester Film 0.15 μF /50V ±5 %	1254154
C408	Semi-conductive 0.047 μF /16V +80/ −20%	1220523
C409	Electrolytic 1 μF /50V ±20%	126F105
C410	Not used	
C411-412	Electrolytic 10 μF /16V ±20%	126C106
C413	Electrolytic 2.2 μF /50V ±20% (N.P.)	126X225
C414	Electrolytic 10 μF /16V ±20%	126C106
C415	Semi-conductive 0.01 μF /25V ±10%	12Y2103
C416	Electrolytic 47 μF /6.3V ±20%	126A476
C417	Electrolytic 47 μF /10V ±20%	126B476
C418	Semi-conductive 0.047 μF /25V ±10%	12Y2473
C419	Electrolytic 1 μF /50V ±20%	126F105
C420	Semi-conductive 0.047 μF /25V ±10%	12Y2473
C421	Electrolytic 1 μF /50V ±20%	126F105
C422	Polyester Film 0.033 μF /50V ±5 %	1254333
C423	Semi-conductive 0.1 μF /12V ±10%	12Y1104
C424-425	Semi-conductive 0.0047 μF /25V ±10%	12Y2472
C426	Semi-conductive 0.1 μF /12V ±10%	12Y1104
C427	Not used	
C428	Electrolytic 100 μF /25V ±20%	126D107
C501	Electrolytic 47 μF /6.3V ±20%	126A476
C502	Not used	
C505	Electrolytic 2.2 μF /50V ±20%	126F225
C506	Electrolytic 10 μF /16V ±20% (N.P.)	126U106
C507	Not used	
C509	Electrolytic 100 μF /16V ±20%	126C107
C510	Semi-conductive 0.1 μF /25V +80/ −20%	1220461 or 1220520
C511	Electrolytic 4.7 μF /25V ±20% (N.P.)	126V475
C512	Semi-conductive 0.1 μF /25V +80/ −20%	1220461 or 1220520
C513	Electrolytic 47 μF /16V ±20%	126C476
C514-600	Not used	
C601-651	See Power Supply PCB	
C652	Semi-conductive 0.047 μF /16V +80/ −20%	1220523
C653	Not used	
C654	Semi-conductive 0.1 μF /25V +80/ −20%	1220461 or 1220520
C702	Electrolytic 0.1 μF /50V ±20%	126F104
C703	Semi-conductive 0.033 μF /50V ±10%	1220786
C704	Polyester Film 0.015 μF /50V ±5 %	1254153
C705	Semi-conductive 0.033 μF /50V ±10%	1220786
C706	Polyester Film 0.015 μF /50V ±5 %	1254153
C707	Electrolytic 47 μF /35V ±20%	126E476
C708	Electrolytic 4.7 μF /25V ±20%	126D475
C709	Ceramic 0.001 μF /50V ±10% YB	12B3102
C710	Electrolytic 1000 μF /6.3V ±20%	126A108
C711	Ceramic 0.001 μF /50V ±10% YB	12B3102
C712	Ceramic 330 pF /50V ±5 % SL	1270331
C713	Electrolytic 0.47 μF /50V ±20%	126F474
C714	Electrolytic 1 μF /50V ±20%	126F105
C715	Ceramic 270 pF /50V J SL	1270271
C716	Electrolytic 0.47 μF /50V ±20%	126F474
C717	Electrolytic 100 μF /16V ±20%	126C107
C718-719	Electrolytic 47 μF /16V ±20%	126C476
C720	Electrolytic 3.3 μF /50V ±20%	126F335
C721	Not used	
C722	Electrolytic 0.1 μF /50V ±20%	126F104
C723	Electrolytic 0.47 μF /50V ±20%	126F474
	Coils	
L51	Microinductor 22 μH	2162220
L52	Not used	
L53	Microinductor 39 μH	2162390
L54	Microinductor 100 μH	2162101
L55	Not used	
L56	Microinductor 82 μH	2162820
L57	Microinductor 180 μH	2162181
L58	Microinductor 100 μH	2162101
L59	Not used	
L60	Microinductor 100 μH	2162101
L101	Microinductor 68 μH	2162680
L102	Microinductor 680 μH	117M491 or 117D491
L103	Microinductor 330 μH	2162331
L181	Microinductor 3.9n H	113M575
L201	Microinductor 100 μH	2162101
L202	Microinductor 12 mH	117M502 or 117D472
L203	Microinductor 100 μH	2162101
L401-402	Choke 200 μH	117B441
T52	EQ	1810585 or 1810710
T201	Audio Bias OSC	113M686 or 1130686
	Diodes	
D51-52	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B

Ref. No	Description	Parts No.
D56	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D102	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D151	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D401-402	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D404-408	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D501-502	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D503	MTC06B	MTC06B
D505-506	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
D651	1SS132 or GMB01B	1SS132 or GMB01B
D702-703	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
Filters		
T51	LPF 3MHz	1810805 or 1810994
T101	LPF 1.5MHz	1130621 or 1130G21
T102	BPF 4.43MHz	1810770 or 1810804
CF101	Ceramic 5.06MHz (BPF)	1810497
CF181	Ceramic 4.5MHz	1810359
DL101	Comb Filter	1812112 or 1812215
ICs		
IC51	NJM78L05A or AN78L05 (Linear) (3terminal Voltage Regulator)	J78L05A or AN78L05
IC52	Not used	
IC151	LVA508S (Linear) (Input Selector)	14L0187
IC201	BA7751LS or BA7751ALS (Linear) (Audio)	14L0200
IC202	BA7755 (Linear) (R /P Switch)	14LF236
IC401	BA6219B (Linear) (Capstan Drive)	14LF232
IC402	MN6748FVAA (Mos /Other) (Servo)	14LN300
IC501	MN158461FVU-6 (Mos /Micro Processor) (Sys-Con)	14LN244C
IC502	BA6238A or TA7288P (Lineae) (Loading Motor Drive)	14LF168 or 14LW198
IC652	NJM78L05A or AN78L05 (Linear) (3terminal Voltage Regulator)	J78L05A or AN78L05
IC701	LA7913 (Linear) (Band Selector & AMP)	14LQ237
IC702	AN6912 or LA6339 (Linear) (Camparator) BA10339 (Linear) or NJM2901N (Linear)	AN6912 or LA6339 or BA10339 or NJM2901N
IC703	LA7210 (Linear) (Sync Sepa)	14LQ115
IC704	L5631 (Linear) (Voltage Regulator)	L5631
HIC51	Hybrid Y (Other) (Luminance)	1812119
HIC101	Hybrid C (Other) (Color)	1812117
HIC401	Hybrid Servo (Other)	1812120

MCV107

Ref. No	Description	Parts No.
Jacks		
J1	Not used	
J2	RCA (White)	1780078
J3	Not used	
J4	RCA (White)	1780078
Resistors		
R51	Carbon 390 ohm 1/5W ±5 %	1324391
R52	Carbon 1k ohm 1/5W ±5 %	1324102
R53	Carbon 56k ohm 1/5W ±5 %	1324563
R54	Carbon 680 ohm 1/5W ±5 %	1324681
R55	Carbon 1.5k ohm 1/5W ±5 %	1324152
R56	Carbon 6.8k ohm 1/5W ±5 %	1324682
R57	Carbon 2.2k ohm 1/5W ±5 %	1324222
R58	Oxide Film 330 ohm 1W ±5 %	1330419 or 1330363
R59-60	Not used	
R61	Carbon 68 ohm 1/5W ±5 %	1324680
R62	Carbon 1k ohm 1/5W ±5 %	1324102
R63	Not used	
R64	Carbon 560 ohm 1/5W ±5 %	1324561
R65-70	Not used	
R71	Carbon 82 ohm 1/5W ±5 %	1324820
R73	Not used	
R74	Carbon 1.2k ohm 1/5W ±5 %	1324122
R75	Carbon 18k ohm 1/5W ±5 %	1324183
R76	Carbon 1k ohm 1/5W ±5 %	1324102
R77	Carbon 4.7k ohm 1/5W ±5 %	1324472
R78-81	Not used	
R102	Carbon 6.8k ohm 1/5W ±5 %	1324682
R103	Carbon 1k ohm 1/5W ±5 %	1324102
R104-105	Not used	
R106	Carbon 270 ohm 1/5W ±5 %	1324271
R107	Carbon 2.2k ohm 1/5W ±5 %	1324222
R108-110	Not used	
R121	Carbon 5.6k ohm 1/5W ±5 %	1324562
R122	Carbon 1.8k ohm 1/5W ±5 %	1324182
R151	Carbon 1.5k ohm 1/5W ±5 %	1324152
R152-153	Carbon 22k ohm 1/5W ±5 %	1324223
R154	Carbon 5.6k ohm 1/5W ±5 %	1324562
R155	Carbon 330 ohm 1/5W ±5 %	1324331
R156	Carbon 47k ohm 1/5W ±5 %	1324473
R157	Carbon 82 ohm 1/5W ±5 %	1324820
R181	Carbon 1k ohm 1/5W ±5 %	1324102
R201	Carbon 15k ohm 1/5W ±5 %	1324153
R202	Fuse 22 ohm 1/4W ±5 %	5361220
R203	Carbon 47 ohm 1/5W ±5 %	1324470
R204	Carbon 6.8k ohm 1/5W ±5 %	1324682
R205	Carbon 4.7 ohm 1/5W ±5 %	1324479
R206	Carbon 56k ohm 1/5W ±5 %	1324563
R207	Carbon 4.7k ohm 1/5W ±5 %	1324472
R208	Carbon 39k ohm 1/5W ±5 %	1324393
R209	Carbon 5.6k ohm 1/5W ±5 %	1324562
R210	Carbon 68k ohm 1/5W ±5 %	1324683
R211	Carbon 220 ohm 1/5W ±5 %	1324221
R212	Carbon 330k ohm 1/5W ±5 %	1324334
R213	Carbon 10k ohm 1/5W ±5 %	1324103
R214	Not used	
R215	Carbon 22k ohm 1/5W ±5 %	1324223
R216	Carbon 8.2k ohm 1/5W ±5 %	1324822
R217	Carbon 1M ohm 1/5W ±5 %	1324105
R218	Carbon 27k ohm 1/5W ±5 %	1324273
R219	Carbon 15k ohm 1/5W ±5 %	1324153
R220	Carbon 680 ohm 1/5W ±5 %	1324681
R221	Carbon 330 ohm 1/5W ±5 %	1324331
R222-223	Not used	
R224-226	Carbon 10k ohm 1/5W ±5 %	1324103
R228	Carbon 68k ohm 1/5W ±5 %	1324683
R229	Carbon 100 ohm 1/5W ±5 %	1324101
R401	Oxide Film 1.5 ohm 1W ±5 %	1330391 or 1330317
R402	Oxide Film 3.3 ohm 2W ±5 %	1330460 or 1330318
R403-404	Carbon 2.7k ohm 1/5W ±5 %	1324272
R405-406	Carbon 39k ohm 1/5W ±5 %	1324393
R407	Carbon 1k ohm 1/5W ±5 %	1324102
R408	Carbon 4.7k ohm 1/5W ±5 %	1324472
R409-410	Carbon 10k ohm 1/5W ±2 %	1354103
R411	Carbon 100 ohm 1/5W ±5 %	1324101
R412	Carbon 2.2k ohm 1/5W ±5 %	1324222

Ref. No	Description	Parts No.
R413	Carbon 1k ohm 1/5W ±5 %	1324102
R414	Carbon 3.3k ohm 1/5W ±5 %	1324332
R415	Carbon 18k ohm 1/5W ±5 %	1324183
R416	Not used	
R417-418	Carbon 10k ohm 1/5W ±5 %	1324103
R419	Not used	
R420	Carbon 6.8k ohm 1/5W ±5 %	1324682
R421	Carbon 91k ohm 1/5W ±5 %	1324913
R422	Carbon 6.8k ohm 1/5W ±5 %	1324682
R423	Carbon 75k ohm 1/5W ±5 %	1324753
R424	Not used	
R425	Carbon 1.5k ohm 1/5W ±5 %	1324152
R426	Carbon 27k ohm 1/4W ±5 %	1330738
R427-430	Not used	
R501	Carbon 150 ohm 1/5W ±5 %	1324151
R502	Carbon 1.2k ohm 1/5W ±5 %	1324122
R503	Carbon 82k ohm 1/5W ±5 %	1324823
R504	Carbon 4.7k ohm 1/5W ±5 %	1324472
R505-506	Carbon 47k ohm 1/5W ±5 %	1324473
R507	Carbon 220k ohm 1/5W ±5 %	1324224
R508	Carbon 47k ohm 1/5W ±5 %	1324473
R509	Carbon 220k ohm 1/5W ±5 %	1324224
R510-512	Carbon 2.7k ohm 1/5W ±5 %	1324272
R513	Carbon 4.7k ohm 1/5W ±5 %	1324472
R514-515	Carbon 10k ohm 1/5W ±5 %	1324103
R516	Carbon 47k ohm 1/5W ±5 %	1324473
R517-518	Not used	
R519	Carbon 3.6k ohm 1/5W ±5 %	1324362
R520	Carbon 47k ohm 1/5W ±5 %	1324473
R521	Not used	
R522	Carbon 5.6k ohm 1/5W ±5 %	1324562
R523	Carbon 22k ohm 1/5W ±5 %	1324223
R524	Carbon 10k ohm 1/5W ±5 %	1324103
R525-527	Carbon 6.8k ohm 1/5W ±5 %	1324682
R528	Carbon 47k ohm 1/5W ±5 %	1324473
R529	Oxide Film 3.3 ohm 1W ±5 %	1330395 or 1330320
R530-600	Not used	
R601-650	See Power Supply PCB	
R651	Carbon 100k ohm 1/5W ±5 %	1324104
R652	Carbon 1.8k ohm 1/5W ±5 %	1324182
R653	Carbon 100k ohm 1/5W ±5 %	1324104
R654	Carbon 1.2k ohm 1/5W ±5 %	1324122
R655-656	Carbon 22k ohm 1/5W ±5 %	1324223
R657	Carbon 1.2k ohm 1/5W ±5 %	1324122
R701	Carbon 10k ohm 1/5W ±5 %	1324103
R702	Carbon 33k ohm 1/5W ±5 %	1324333
R703	Carbon 470k ohm 1/5W ±5 %	1324474
R704-706	Carbon 220k ohm 1/5W ±5 %	1324224
R707	Carbon 22k ohm 1/5W ±5 %	1324223
R708-709	Carbon 47k ohm 1/5W ±5 %	1324473
R710	Carbon 1M ohm 1/5W ±5 %	1324105
R711	Carbon 3.9k ohm 1/5W ±5 %	1324392
R712	Carbon 3.3k ohm 1/5W ±5 %	1324332
R713-714	Carbon 12k ohm 1/5W ±2 %	1354123
R715	Carbon 4.7k ohm 1/5W ±2 %	1354472
R716	Carbon 7.5k ohm 1/5W ±2 %	1354752
R717	Carbon 33k ohm 1/5W ±5 %	1324333
R718-720	Carbon 10k ohm 1/5W ±5 %	1324103
R721	Carbon 750 ohm 1/5W ±5 %	1324751
R722	Carbon 1k ohm 1/5W ±5 %	1324102
R723	Carbon 330k ohm 1/5W ±5 %	1324334
R724	Carbon 22k ohm 1/5W ±5 %	1324223
R725	Carbon 100k ohm 1/5W ±5 %	1324104
R726	Carbon 820 ohm 1/5W ±5 %	1324821
R727-729	Carbon 47k ohm 1/5W ±5 %	1324473
R730	Carbon 4.7k ohm 1/5W ±5 %	1324472
R731	Carbon 1.5k ohm 1/5W ±5 %	1324152
R732-733	Not used	
R734	Carbon 1.5k ohm 1/2W ±5 %	1322152
R745	Carbon 4.7k ohm 1/5W ±5 %	1324472
R746	Carbon 10k ohm 1/5W ±5 %	1324103
Semi-Fixed Resistors		
VR51	1k ohm B	138N777 or 138J777
VR101	1k ohm B	138N777 or 138J777
VR201	100k ohm B	138N785 or 138J785

Ref. No	Description	Parts No.
VR401	200k ohm B (Metal)	1380832
VR402	200k ohm B	138N786 or 138J786
Transistors		
Q51	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q52	2SA608SPEF or 2SA933QR	A608SEF or A933QR
Q54	Not used	
Q56	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q101	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q102	Not used	
Q120	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q201	2SD400F or 2SC2060Q	D400F or C2060Q
Q501	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q502	2SA1317ST or 2SA934QR	A1317ST or A934QR
Q503	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
Q504	2SD400F or 2SC2060Q	D400F or C2060Q
Q651	2SB892ST or 2SB1010QR	B892ST or B1010QR
Q652	2SD1207ST or 2SD1384QR	D1207ST or D1384QR
Q653	2SC3393SPST or 2SC1741AQR	C3393SST or C1741AQR
Q654	2SB892ST or 2SB1010QR	B892ST or B1010QR
Q701	2SA1038RS or 2SA1016KFG	A1038RS or A1016KFG
Q702	2SK128TAPQ (FET)	K128PQ
Q704	2SD1012FG or 2SD1468SRS	D1012FG or D1468SRS
Digital Transistors		
QR56	Not used	
QR101	2SA1346 or DTA124ES	A1346 or A124ES
QR501	2SC3400 or DTC124ES	C3400 or C124ES
QR502-503	DTA143XS	A143XS
QR504	2SC3400 or DTC124ES	C3400 or C124ES
QR505	2SA1346 or DTA124ES	A1346 or A124ES
QR506	DTA144WS	A144WS
QR702	2SA1346 or DTA124ES	A1346 or A124ES
QR703	2SC3400 or DTC124ES	C3400 or C124ES
QR705	2SC3400 or DTC124ES	C3400 or C124ES
Miscellaneous		
CN-Ba	Connector Base 5P (TOP)	1740767
CN-Bb	Connector Base 2P (TOP)	1740764
CN-D	Connector Base 7P (TOP)	1740769
CN-E	Connector Base 6P (TOP)	1740768
CN-J	Connector Base 5P (TOP)	1740767

MCV107

Ref. No	Description	Parts No.
	Miscellaneous	
X101	X'tal 4.43Mlz	1811205 or 1811259
X501	Ceramic Resonator 3.58Mlz	1811211 or 1812206
X701	Ceramic Resonator 500klz	1811103 or 1810414
	Heatsink	6S50318
TU701	Tuner IF	1812156
Conv-1	RF Conv.	1812155
	PCB Ass'y, Timer	1613937BX
	Capacitors	
C801	Ceramic 10 pF /50V ±5 % NPO	12CH100
C802	Semi-conductive 0.047 μF /16V +80/ -20%	1220523
C804	Ceramic 0.047 μF /50V +80/ -20%	1220870
C805	Ceramic 0.01 μF /50V ±10% YF	12F3103
	Diodes	
D801-810	US1040M or 1SS254 or GMB01B	US1040M or 1SS254 or GMB01B
	ICs	
IC801	MN1225 (Mos /Memory) (Memory)	141N269
IC802	MN1280Q (Mos /Other) (Reset)	141N185
IC803	MN15283FVAE-2 (Mos /Micro Processor) (Timer	141N332A
	Resistors	
R801	Carbon 33k ohm 1/5W ±5 %	1324333
R802	Carbon 2.2k ohm 1/5W ±5 %	1324222
R805	Carbon 47k ohm 1/5W ±5 %	1324473
R810-811	Carbon 3.3k ohm 1/5W ±5 %	1324332
	Transistor	
Q801	2SC536SPEF or 2SC1740QR	C536SEF or C1740QR
	Digital Trasistor	
QR801	2SA1346 or DTA124ES	A1346 or A124ES
	Switches	
SW804-818	Push SW	5622015 or 5622017 or 1622908
SW827	Slide SW 1C-2P	1621660
SW829	Slide SW 1C-2P	1621660
	Miscellaneous	
TC801	Trimmer 20pF	1280122 or 1280154
X801	X'Tal 4.19Mlz	1811191
FL801	FIP11GM6	1812096
	FIP Holder(R)	6N50142
	FIP Holder(L)	6N50149
	PCB Ass'y Control	1613937CX
	Capacitor	
C803	Electrolytic 47 μF /6.3V ±20%	52GR476
	Resistor	
R803	Carbon 10k ohm 1/5W ±5 %	1324103

Ref. No	Description	Parts No.
	Switches	
SW802	Push SW	5622015 or 5622017 or 1622908
SW819-826	Push SW	5622015 or 5622017 or 1622908
	Miscellaneous	
VR801	Potentiometer 250k ohm (B) (Tracking)	539N661
VR802	Potentiometer 20k ohm (B) (Picture)	539N703
RS801	Remote Sensor	1812012 or 1812075
CN-5	Connector Base 7P (Side)	1770252
	PCB Ass'y, SW	1613905EX
SW401	Slide SW	1621691 or 1621692 or 1621693
	Connector Base 8P (Side)	1740781

PSV46

Ref.No	Description	Parts No.
	PCB Ass'y, Power Supply	1613903X
	Capacitors	
C601-602	Ceramic 0.022 μF /50V Z	12F3223
C603	Electrolytic 2200 μF /35V Z	626E228
C604	Electrolytic 2200 μF /25V M	626D228
C605	Electrolytic 3300 μF /16V M	626C338
C606	Electrolytic 22 μF /63V M	126G226
C607	Electrolytic 47 μF /63V M	126G476
C608	Electrolytic 47 μF /35V M	126E476
C609	Electrolytic 47 μF /25V M	126D476
C610-611	Electrolytic 47 μF /16V M	126C476
C612	Electrolytic 47 μF /10V M	626B476
C613-651	Not used	
	Diodes	
D601-602	1N4003 or GP10-4003 or 1SR35-200A	1N4003 or MPL5209 or 35-200A
D603	MTZ30 A,B or UZ-30BSC	MTZ30A or MTZ30B or UZ-30BSC
D604-605	Not used	
D606	MTZ6.2B	MTZ6.2B
D607	KBL02L or RS403L or S4VB20	KBL02L or RS403L or S4VB20
D608-611	1N4003 or GP10-4003	1N4003F2 or MPL5209
	ICs	
IC601	AN7818F (Linear) (Voltage Regulator)	AN7818F
IC602	AN7812F (Linear) or NJM7812FA (Linear) (Voltage Regulator)	AN7812F or 14L0251
IC603	AN78M05F (Linear) or NJM78M05FA (Linear) (Voltage Regulator)	AN78M05For 14L0238
IC604	AN7812F (Linear) or NJM7812FA (Linear) (Voltage Regulator)	AN7812F or 14L0251
	Resistors	
R601	Not used	
R602	Metal Oxide 1.2k ohm 1W J	534A122
R603	Not used	
R604-605	Carbon 100 ohm 1/5W J	1324101
R606	Carbon 22k ohm 1/5W J	1324223
R607-650	Not used	
	Miscellaneous	
T601	Power Trans	115M507 or 115O507 or 115N507
F601	Fuse 200mA	1790474
F602	Not used	
F603	Fuse 630mA	1790479
CN-1	Connector Base 11P (Side)	1770256
CN-12	Connector	1730688
	Fuse Holder	1790424
	Trans Cover	6P50133
	L.F Cover	6N50150
L601	Line Filter	171N082
	Others	
	AC Cord	5750011
	Cord Stopper	1790173
	RCA Plug Cord	1750926

MECHANICAL PARTS LIST (DECK)

P306

Ref. No.	Description	Parts No.
	CYLINDER	
1	Cylinder Ass'y	8000-01-315
	(Consists of 2-13, 24)	
2	Drum, upper with video head	8000-01-13
3	Mount Assy, Cylinder	8000-01-302
	(Consists of 4-8, 24)	
4	Drum, Lower Ass'y	8000-01-303
5	Mount, Cylinder	8000-01-22
6	PCB Ass'y, video Out	8000-01-304
7	Screw, Sems, M3 × 10	9109-00-00
8	Screw, Sems, M2.6 × 6	9098-00-00
24	Screw, Sems, M3 x 12	9110-00-00
9	Motor, TM-81A	6004-03-22
10	Screw, Camera, M2 ×4.5	9560-00-00
11	Screw, Sems, M2.6 × 6	9098-00-00
12	PCB for Upper Drum	8000-01-14
13	Screw, Sems, M3 ×8	9108-00-00
14	Screw, Sems, M3×10	9109-00-00
15	Bracket, Drum Ground	8000-01-48
16	Ground, Drum	8000-01-49
17	Screw, Tams, M3 ×10	9109-00-00
18	Screw, CUP, M2.6 ×3	9965-00-00
19	Screw, Sems, M2 x 5	9078-00-00
20	Rivet, Drum Motor Bracket	8000-01-501
21	Supporter PCB, Motor	8000-01-37
22-23	Not used	
25-30	Not used	
	CHASSIS	
31	Rivet, chassis	8000-02-507
32-33	Not used	
34	Open Angle Ass'y	8000-02-301
35	Screw, C-Tight, M2.6 × 5	9192-00-00
36	Rivet, Back Tension Change Plate	8000-02-502
37	Arm (B), Back Tension Change	8000-13-32
38	Collar	8000-08-12
39	Screw, Camera S-Tight, M2.6 ×3.5	9840-00-00
40	Actuator (B), Back Tension	8000-13-31
41	Collar	8000-08-12
42	Screw, C-Tight, M2.6×5	9192-00-00
43	Return Arm, Right Brake	8000-02-21
44	Collar	8000-08-12
45	Screw, C-Tight, M2.6×5	9192-00-00
46	Bracket, Mecha	8000-22-09
47	Screw, C-Tight, M3×5	9202-00-00
48-50	Not used	
	LOADING BASE	
51	Rivet, loading Base	8000-03-501
52	Block (L), Loading	8000-03-31
53	Block (R), Loading	8000-03-09
54	Post, Roller	8000-03-34
55	Boss, Loading	8000-03-12
56	Screw, Set with Hexagon Hole, M 2 ×3	9952-00-00
57	Screw, Camera, M2.6 ×4.5	9559-00-00
58	Washer, Flat, ϕ2.6 ×ϕ7 ×t 0.8	9324-00-00
59	Holder, Loading	8000-03-13
60	Screw, Sems, M2 ×4	9077-00-00
61	Guide, Tape	8000-03-14
62	Flange, Tape Guide	8000-03-18
63	Flange (B), Tape Guide	8000-03-20
64	Spring, Tape Guide	8000-03-15
65	Nut, M3	9453-00-00
66	Cap, Guide	8000-03-19
67	Nut, Tracking Adjuster	8000-03-16
68	Screw, Sems, M3 ×6	9107-00-00
69	Rollerpost, SIS	8000-03-33
70-76	Not used	
77	Flange (C), Tape Guide	8000-03-28
78	Flange (D), Tape Guide	8000-03-29
79	Nut, Nylon, M3	9953-00-00
80	Not used	
	LOADING DRIVE	
81	Plate (L) Ass'y, Loading	8000-04-301
	(Consists of 82-85)	
82	Rivet, Loading Plate (L)	8000-04-501
83	Roller, Back Tension Return	8000-04-25
84	E-Ring, ϕ1.5	9500-00-00
85	Spring, Loading Plate	8000-04-23
86	Plate (R) Ass'y Loading	8000-04-302
	(Consists of 87-88)	
87	Rivet, Loading Plate (R)	8000-04-502
88	Spring, Loading Plate	8000-04-23
89	Drive Gear (L) Ass'y	8000-04-303
	(Consists of 90-92)	
90	Gear (A), L Drive	8000-04-13
91	Gear (B), Ass'y, L Drive	8000-04-304
92	Gear Spring, L Drive	8000-04-16

Ref. No.	Description	Parts No.
93	Washer, Flat, ϕ4 ×ϕ16×t 0.6	9956-00-00
94	Gear, Control	8000-04-20
95	Plate, Gang	8000-04-21
96	Gear, Gang	8000-04-22
97	Gear, Joint(B)	8000-04-19
98	Gear, Joint(A)	8000-04-18
99	Gear, Guide	8000-04-09
100	Washer, Flat, ϕ2.5 ×ϕ14×t 1	9955-00-00
101	E-Ring, ϕ2.0	9502-00-00
102	Roller, Guide	8000-04-10
103	Washer, Flat, ϕ2.5 ×ϕ10×t 1	9954-00-00
104	Screw, Small, M2.6 × 4	9038-00-00
105	E-Ring, ϕ3.2	9506-00-00
106	E-Ring, ϕ2.3	9503-00-00
107	E-Ring, ϕ2.5	9504-00-00
108-140	Not used	
141	Head Base Ass'y	8000-06-310
	(Consists of 142-150)	
142	Head, Audio/Control	6204-15-02
143	Rivet, Head Base	8000-06-501
144	Screw, Azimuth SP	8000-06-26
145	Not used	
146	Spring, Azimuth	8000-06-04
147	Screw, Small, M2.6 × 7	9041-00-00
148	Screw, Set with Hexagon Socket, 3 ×5	9950-00-00
149	Collar, Adjust	8000-06-05
150	Nut, Nylon, M3	9953-00-00
151	Spring, Head	8000-06-03
152	Bracket Ass'y, MD PCB	8000-06-316
	(Consists of 153-155)	
153	Bracket, MD PCB	8000-06-18
154	PCB Ass'y, MD	8000-06-315
155	Screw, Sems, M2 ×5	9078-00-00
156	Screw, Sems, M2.6 ×5	9097-00-00
157-170	Not used	
	FEH	
171	Plate Ass'y, Impedance Roller	8000-07-303
	(Consists of 172-175, 178)	
172	Rivet, Impedance	8000-07-501
173	Roller, Impedance	8000-07-05
174	Washer, Polyslider,	9743-00-00
	ϕ1.6 ×ϕ3.8 × t 0.3	
175	Washer, Polyslider,	9747-00-00
	ϕ2.1 ×ϕ5 × t 0.3	
178	Head, Full Erase	6204-15-03
176	FE Plate Spring	8000-07-04
177	E-Ring, ϕ3.0	9505-00-00
179	Screw, Camera, M2 X 3	9550-00-00
180-190	Not used	
	TENSION ARM	
191	Tension Arm Ass'y	8000-08-302
	(Consists of 192-196)	
192	Brake Ass'y	8000-08-303
	(Consists of 193-194)	
193	Flat Ass'y, Back Tension	8000-08-301
194	Screw, P-Tight, M2 × 8	9675-00-00
195	Arm Ass'y, Tension Arm	8000-08-501
196	E-Ring, ϕ1.5	9500-00-00
197	Plate, Back Tension Adjusting	8000-08-13
198	Spring, Tension Arm	8000-08-14
199	Screw, W-Sems, M2.6 ×5	9971-00-00
200	Not used	
201	Arm, Back Tension Return	8000-08-10
202	Collar	8000-08-12
203	Screw, Sems, Camera, M2.6 x 4.5	9999-18-01
204	E-Ring, ϕ2.0	9502-00-00
205	E-Ring, ϕ2.0	9502-00-00
206	Lever, Back Tension Return	8000-08-11
207	E-Ring, ϕ2.5	9504-00-00
208	Guide, Tension	8000-08-17
209	Support (B), Back Tension	8000-08-16
210	Screw, C-Tight, M2.6 × 5	9192-00-00
211	Screw, C-Tight, M3 × 5	9202-00-00
212-220	Not used	
	PINCH ROLLER	
221	Pinch Roller Ass'y	8000-09-306
	(Consists of 222-224)	
222	Screw, M2.6 × 4	9038-00-00
223	Rivet, Pinch Roller Arm	8000-09-504
224	Pinch Roller	8000-09-22
225	E-Ring, ϕ2.3	9503-00-00
226	Toggle Arm Ass'y	8000-09-305
	(Consists of 227-229)	
227	Rivet, Toggle Arm	8000-09-505
228	Spring (B), Pinch Roller	8000-09-05
229	Spring (A), Pinch Roller	8000-09-04
230	Collar	8000-08-12
231	Screw, C-Tight M2.6 ×5	9120-00-00

Ref. No.	Description	Parts No.
232	Plate Ass'y, Pressure (Consists of 233-237)	8000-09-303
	233 Rivet, Pressure Plate	8000-09-503
	234 Roller, Pressure	8000-09-08
	235 E-Ring, ϕ2.0	9502-00-00
	236 Collar	8000-08-12
	237 Screw, C-Tight, M2.6×5	9192-00-00
238	Actuator, Pressure Arm	8000-09-20
239	Support, Tape	8000-09-17
240	Shaft, Tape Support	8000-09-18
241	Spring, Tape Support	8000-09-19
242	Nut, Self	8000-09-21
243-250	Not used	
	SUB CHASSIS	
251	Sub Chassis Ass'y (Consists of 252-259)	8000-10-306
	252 Rivet, Sub Chassis	8000-10-507
	253 Arm, Change Plate Action	8000-10-17
	254 E-Ring, ϕ3	9505-00-00
	255 Spring, Change Plate	8000-10-15
	256 Spring, Change Plate Action Arm	8000-10-19
	257 Rivet, Actuator Switch	8000-10-506
	258 Collar	8000-08-12
	259 Screw, Sems, M2.6 ×5	9097-00-00
260-262	Not used	
263	Screw, Sems, M2.6 × 5	9097-00-00
264	Screw, Sems, M2 × 6	9079-00-00
265	Screw, Camera, Flat Head, M2.6 × 5	9564-00-00
266-280	Not used	
	REEL	
281	Reel Ass'y, Supply	8000-11-301
282	Reel Ass'y, Take-up	8000-11-310
283	Washer, Polyslider, ϕ2 ×ϕ5 × t 0.5	9876-00-00
284	Washer, ϕ3.1 ×ϕ6 × t 0.6	9969-00-00
285	Bracket Ass'y, Reel Sensor (Consists of 286-288)	8000-11-308
	286 PCB Ass'y, Reel Sensor	8000-11-306
	287 Bracket (B), Reel Sensor	8000-11-17
	288 Screw, Camera, M2.6 × 2.5	9555-00-00
289	Screw, Sems M2.6×4	9096-00-00
290	Screw, M2.6 × 7	9041-00-00
291	Not used	
292	PCB Ass'y, Reel Sensor Connector	8000-11-307
293	Screw, Sems, M2.6 ×4	9096-00-00
294	Not used	
	REEL DRIVE	
295	Pulley, Wind	8000-12-308
296-300	Not used	
301	Ass'y, Clutch	8000-12-304
302	Gear Holder Ass'y (Consists of 303-305, 314-320)	8000-12-311
	303 Rivet, Gear Holder	8000-12-505
	304 Gear, R Drive	8000-12-19
	305 E-Ring	9500-00-00
	314 Gear (B) Ass'y, Return	8000-12-306
	315 Drum Ass'y, Return	8000-12-307
	316 E-Ring, ϕ1.5	9500-00-00
	317 Arm, Return	8000-12-18
	318 Arm Collar, Return	8000-12-26
	319 Screw, Camera M2×3	9562-00-00
	320 Sprig, Return	8000-12-25
306	Gear (p)	8000-12-07
307	Gear, FF	8000-12-08
308	Washer, ϕ1.6 ×ϕ3.8 ×t0.3	9743-00-00
309	Wave, Washer	8000-10-25
310	Screw, Sems M2×5	9078-00-00
311	Clutch Ass'y, RF	8000-12-309
312	Washer, ϕ3.6 ×ϕ6 ×t0.1	9798-00-00
313	Washer, Polyslider ϕ2.6 ×ϕ6 ×t0.5	9884-00-00
	BRAKE	
321	Plate, Switching	8000-13-503
322	Brake Ass'y, Supply Reel (Consists of 323-325)	8000-13-301
	323 Main Brake Ass'y, Supply Reel	8000-13-501
	324 Spring, Brake Arm	8000-13-09
	325 Shue B, Brake	8000-13-26
326	E-Ring, ϕ2.3	9503-00-00
327	Spring, Brake Main	8000-13-10
328	Brake Ass'y, Take-up Reel (Consists of 329-331)	8000-13-302
	329 Main Brake Ass'y, Take-up Reel	8000-13-502
	330 Spring, Brake Arm	8000-13-09
	331 Shue B, Brake	8000-13-26
332	E-Ring, ϕ2.3	9503-00-00
333	Arm, Take-up Brake Actuator	8000-13-34
334	Collar	8000-08-12
335	Screw, Sems, M2.6 ×5	9097-00-00

Ref. No.	Description	Parts No.
336	Arm Ass'y, Left Brake (Consists of 337-338)	8000-13-304
	337 Arm, Left Brake	8000-13-33
	338 Shue, Brake	8000-13-11
339	Spring LB Arm	8000-13-18
340	E-Ring, ϕ2.3	9503-00-00
341	Arm, Right Brake Actuator	8000-13-21
342	Arm, Left Brake Actuator	8000-13-20
343	Spring, Nutral	8000-13-37
344	Collar, Left Brake Actuator Arm	8000-13-29
345	Spring, Left Brake Actuator Arm	8000-13-28
346	Screw, Small M2.6 × 11	9970-00-00
347	Crank, Bell	8000-13-23
348	E-Ring, ϕ2.5	9504-00-00
349	Plate, Main	8000-13-02
350	Plate, Pull (A)	8000-13-36
351	Collar	8000-08-12
352	Screw, Sems, M2.6×5	9097-00-00
353	Brake Ass'y, S Soft	8000-13-305
354	Spring, S Soft Brake	8000-13-16
355	E-Ring, ϕ2.3	9503-00-00
356	Arm Ass'y, Back Tension	8000-13-306
357	Spring, Right Brake	8000-13-17
358	Sleeve, Right Brake Arm	8000-13-24
359	E-Ring, ϕ2.3	9503-00-00
360	Not used	
	PLANGER	
361	Planger Ass'y, Supply (Consists of 362-364)	8000-14-303
	362 Planger Ass'y, Main	8000-14-302
	363 Board, Release Spring	8000-14-06
	364 Screw, Sems, M2 × 4	9077-00-00
365	Planger	8000-14-04
366	Screw, Sems, M2.6 × 5	9097-00-00
367	Holer, Planger	8000-10-23
368	Screw, Sems, M2.6 × 4	9096-00-00
369-370	Not used	
	FLYWHEEL	
371	Capstan Ass'y, Flywheel	8000-15-30
372	FL Plate Ass'y	8000-15-304
373	Belt, Main	8000-15-26
374-375	Not used	
376	Washer, Nylon, ϕ3.6 ×ϕ10×t 0.5	9957-00-00
377	Capstan Metal	8000-15-24
378	Screw, Flat, M2.6 × 6	9684-00-00
379	Not used	
380	Screw, C-Tight, M3 × 5	9202-00-00
381	Washer, ϕ3.43×ϕ5 ×t 0.5	9860-00-00
382-391	Not used	
	MOTOR	
392	Motor Ass'y, Capstan	8000-16-305
393	Belt, Drive	8000-16-07
394	Belt, Joint	8000-16-08
395	Screw, Sems, M3 X 4	9105-00-00
396	Pulley, Joint	8000-16-304
397	Washer, Polyslider, ϕ1.6 ×ϕ3.8 × t 0.3	9743-00-00
398	Washer, Lumilar, ϕ2.1 ×ϕ5 × t 0.5	9920-00-00
399-460	Not used	
	SENSOR	
461	Not used	
	462 PCB Ass'y, Lamp Holder	8000-18-309
	463-464 Not used	
465-466	Not used	
467	Sensor, Dew	6808-00-08
468	Screw, Sems, M3 × 4	9105-00-00
469-649	Not used	
650	Tape Loading Motor Ass'y (Consists of 651-671)	8000-21-302
	651 Motor with Pulley	8000-21-303
	652 Motor Bracket (B), Tape Loading	8000-21-27
	653 TL Worm Gear	8000-21-304
	654 Mode Switch Ass'y	8000-21-305
	655 Screw, Sems, M2.6 × 5	9097-00-00
	656 Holder (A), TL Worm Gear	8000-21-32
	657 Holder (B), TL Worm Gear	8000-21-33
	658 Pulley, TL	8000-21-40
	659 Belt, TL	8000-21-39
	660-662 Not used	
	663 Actuator, Angle Switch	8000-21-28
	664 Collar, Actuatorr Angle	8000-21-12
	665 Screw, Sems, M2 × 4	9077-00-00
	666 Actuator, M Switch	8000-21-501
	667 Not used	
	668 Screw Sems, M3 × 4	9105-00-00
	669 Screw C-Tight, M2.6 × 5	9192-00-00
	670 Washer, ϕ2.2 ×ϕ3.8 × t 0.2	9939-00-00
	671 E-Ring, ϕ1.2	9499-00-00
	672-699 Not used	

Ref. No.	Description	Parts No.
700	Front Loading Ass'y (Consists of 701-819)	8000-22-323
701	Bracket Ass'y, Loading Motor (Consists of 702-716, 819)	8000-22-302
702	Motor Ass'y, Loading	8000-22-303
703	PCB Ass'y, Loading Motor	8000-22-304
704	Rivet, Motor Bracket	8000-22-501
705	Gear, Worm	8000-22-305
706	PCB Ass'y, Sensor (R)	8000-22-320
707-709	Not used	
710	Lever (A), Switch	8000-22-28
711	Lever (B), Switch	8000-22-29
712	Holder, Worm Gear	8000-22-27
713	Not used	
714	Washer, Polyslider, ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
715	Screw, Sems, M2 × 5	9078-00-00
716	Belt, Front Loading	8000-22-64
717	Bracket (B), Motor	8000-22-70
819	Screw, Sems, Camera, M2.6 x 4.5	9999-18-01
718	Not used	
719	Record Switch Ass'y	8000-22-324
720	Screw, Sems, M2 X 4	9077-00-00
721	Cassette Holder Ass'y (Consists of 722-727)	8000-22-308
722	Holder, Cassette	8000-22-03
723	Plate, Slide	8000-22-13
724	Lock Plate (R)	8000-22-12
725	Collar	8000-08-12
726	Spring, Lock Plate	8000-22-43
727	Screw, Camera, M2.6 × 3	9968-00-00
728-729	Not used	
730	Front Bracket Ass'y (Consists of 731-733)	8000-22-309
731	Bracket, Front	8000-22-06
732	Guide (R), Tape	8000-19-25
733	Guide (L), Tape	8000-19-26
734-744	Not used	
745	Side Plate (R) Ass'y (Consists of 746-756)	8000-22-310
746	Plate (R), Side	8000-22-502
747	Pressure, Cassette	8000-19-11
748	Not used	
749	Screw, Camera, M2.3 × 2	9833-00-00
750	Lever, Open	8000-22-25
751	Spring, Open Lever	8000-22-44
752	Collar, Opaen Lever	8000-22-42
753	Screw, Camera, M2 × 4	9967-00-00
754	Lever, Rock Cancel	8000-22-16
755	Roller, Guide	8000-22-23
756	Washer, Polyslider, ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
757	Stay, Top	8000-22-65
758-759	Not used	
760	Side Plate (L) Ass'y (Consists of 761-770)	8000-22-311
761	Plate (L), Side	8000-22-503
762	Pressure, Cassette	8000-19-11
763	Not used	
764	Screw, Camera, M2.3 × 2	9833-00-00
765	Lock Plate (L)	8000-22-66
766	Spring, Lock Plate (L)	8000-19-65
767	Collar, Lock Plate	8000-19-63
768	Screw, Camera, M2 × 2.5	9966-00-00
769	Roller, Guide	8000-22-23
770	Washer, Polyslider, ϕ1.6 × ϕ3.8 × t 0.3	9743-00-00
771-774	Not used	
775	Housing Bracket (R) Ass'y (Consists of 776-787)	8000-22-312
776	Bracket (R), Housing	8000-22-504
777	Wormwheel Ass'y (Consists of 778-780)	8000-22-313
778	Wormwheel	8000-22-20
779	Gear, Friction	8000-22-21
780	Spring, Friction	8000-22-48
781	Lift Gear (R) Ass'y (Consists of 782-784)	8000-22-314
782	Gear (R), Lift	8000-22-15
783	Arm, Lift	8000-22-11
784	Spring, Lift Gear	8000-22-45
785	Guide, Open Lever	8000-22-26
786	Sleeve, Guide	8000-22-24
787	E-Ring, ϕ2.5	9504-00-00
788-789	Not used	
790	Housing Bracket (L) Ass'y (Consists of 791-804)	8000-22-315
791	Bracket (L), Housing	8000-22-505
792	PCB Ass'y (L), Sensor	8000-22-321
793-795	Not used	
796	Lift Gear (L) Ass'y (Consists of 797-799)	8000-22-318
797	Gear (L), Lift	8000-22-14
798	Arm, Lift	8000-22-11
799	Spring, Lift Gear	8000-22-45

Ref. No.	Description	Parts No.
800	Lever, Lift	8000-22-22
801	Spring, Lift Lever	8000-22-47
802	Sleeve, Guide	8000-22-24
803	E-Ring, ϕ2.5	9504-00-00
804	Screw, Sems, M2.6 × 6	9098-00-00
805-809	Not used	
810	Bracket, Rear	8000-22-08
811	Plate, Upper	8000-22-07
812	Shaft, Synchronize	8000-22-46
813	Gear (A), Synchronize	8000-22-34
814	E-Ring, ϕ2.5	9504-00-00
815	Screw, Sems, M2.6 × 4	9096-00-00
816	Screw, Camera, M2.6 × 3	9556-00-00
817	Screw, Camera, M2.3 × 2.5	9991-00-00
818	Screw, C-Tight, M3 × 5	9202-00-00

MECHANICAL PARTS LIST (CABINET)

Ref. No	Description	Parts No.
A-1X	Front Ass'y	6A50370
	consists of following	
A-1	Front Panel Ass'y	6A50370X
	(Non-repairable)	
	Front	6C50972
	Button, FF	6D50973
	(REW, F.FWD, PAUSE/STILL NOISE CANCEL)	
	Button, Power (FUNCTION, EJECT)	6D50971
	Button, Counter	6D50972
	(CLOCK COUNTER, RESET, MEMORY, CANNEL DOWN /UP, QTR)	
	Button, Record	6D51069
	Button, Play (PLAY, STOP)	6D50970
A-2	Door, Timer	6D51068
A-3	Plate, Counter	6E50973
A-4	Plate, Timer	6E50677
A-5	Not used	
A-12	Label, Tuner	6E50668
A-6	Case, Top	6G50067
A-7	Panel Bottom	6G50053
A-8	Jack Board Ass'y	6A50183
A-9	Foot	6E50453
A-10	Door, Cassette	6D51070
A-11	Label Type	6E51013
A-13	Plate, Jack Board	6P50128
B1-1	Deck Ass'y (See Deck List) TN-8000	P306SRF
B2-1	Cabinet, Main	6C50256
B2-2	Holder, Deck Angle	6S50323
B2-3	Holder, Supporter	6S50324
B2-4	Holder, Deck	6S50208
B2-5	Holder, Cassette Door	6L50062
B2-6	Ground Plate	6S50342
B2-7	Stopper Holder, AC Cord	6S50286
B2-8	Ground Plate, Control PCB	6S50299
B2-9	Heat Sink	6S50317
B2-10	Sheet, Insulation	6P50124
L-1	Screw, P-Tight, Brazier Head, Flange M3 ×12 (for Jack Board Ass'y—2pcs.)	GCKP312
L-2	Screw, P-Tight, Bind Head M3 ×10 (for Jack Board Ass'y—1pc.) (for Head AMP PCB—1pc.) (for Holder, Supporter—2pcs.)	GBMP310
L-3	Screw, P-Tight, Bind Head M3 ×12 (for Main PCB—3pcs.)	GBMP312
L-4	Screw, P-Tight, Brazier, Flange M3 ×12 (for Deck Ass'y—5pcs.)	GCMP312
L-5	Screw, P-Tight, Bind Head M4 ×12 (for Heat Sink—2pcs.)	GBMP412
L-7	Screw, S-Tight, Bind Head M3 ×6 (for Holder, Deck—1pc.)	GBMS306
L-8	Screw, CE-Tight M4 ×8 (for Transformer—2pcs.)	GZMC408
L-9	Screw, Sems, Pan Head M3 ×5 (for Holder, Cassette Door—1pc.)	CPM3305
L-10	Screw, Tapping, Bind Head M3 ×10 (for Transistors—4pcs.) (for IC—1pc) (for Power Supply PCB—1pc)	DBM1310
	Hardware Kits	
L-2	Screw, P-Tight, Bind Head M3 ×10 (for Front Ass'y—3pcs.) (for Panel, Bottom—8pcs.)	GBMP310
L-6	Screw, P-Tight, Bind Head M4 ×12 (for Case, Top—3pcs.)	GBKP412
	Accessory	
	RF Cord	1750665 or 1750967
	Remote Control Box	1812379
44	Owner's Manual	7E50537